Metabolomic profiling of *Sansevieria trifasciata* hort ex. Prain leaves and roots by HPLC-PAD-ESI/MS and its hepatoprotective effect via activation of the NRF2/ARE signaling pathway in an experimentally induced liver fibrosis rat model

M. A. Raslan[a*], R. F. Abdel-Rahman[b], H. M. Fayed [b], H. A. Ogaly[c,d] and R. F. Taher[e]

[a] Pharmacognosy Department, National Research Centre, Dokki, 12622 Giza, Egypt.

[b] Pharmacology Department, National Research Centre, Giza 12622, Egypt.

[c] Department of Chemistry, College of Science, King Khalid University, Abha 61421, Saudi Arabia

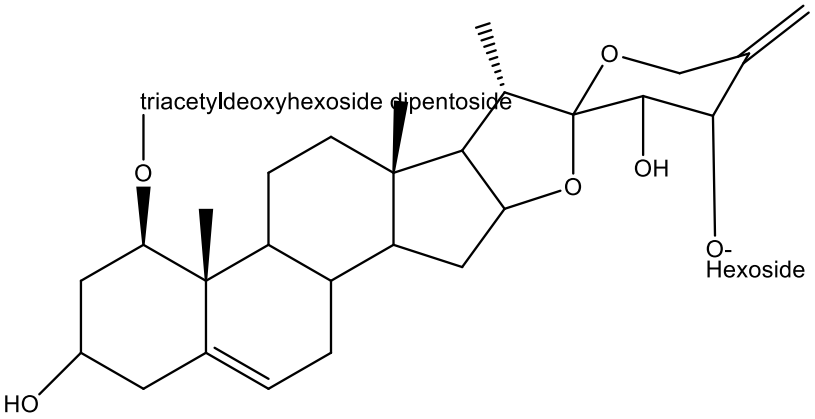
[d] Department of Biochemistry and Molecular Biology, Faculty of Veterinary Medicine, Cairo University, Giza 12211, Egypt

[e] Natural Compounds Chemistry Department, National Research Centre, Dokki, Giza, Egypt.

* Corresponding author. E-mail address: monaazzam78@gmail.com

Supplementary Figures

Figure 1: Peak 1: Tetrahydroxy spirosta-diene-triacetyldeoxyhexoside dipentoside hexoside [M-H]$^-$: 1157.



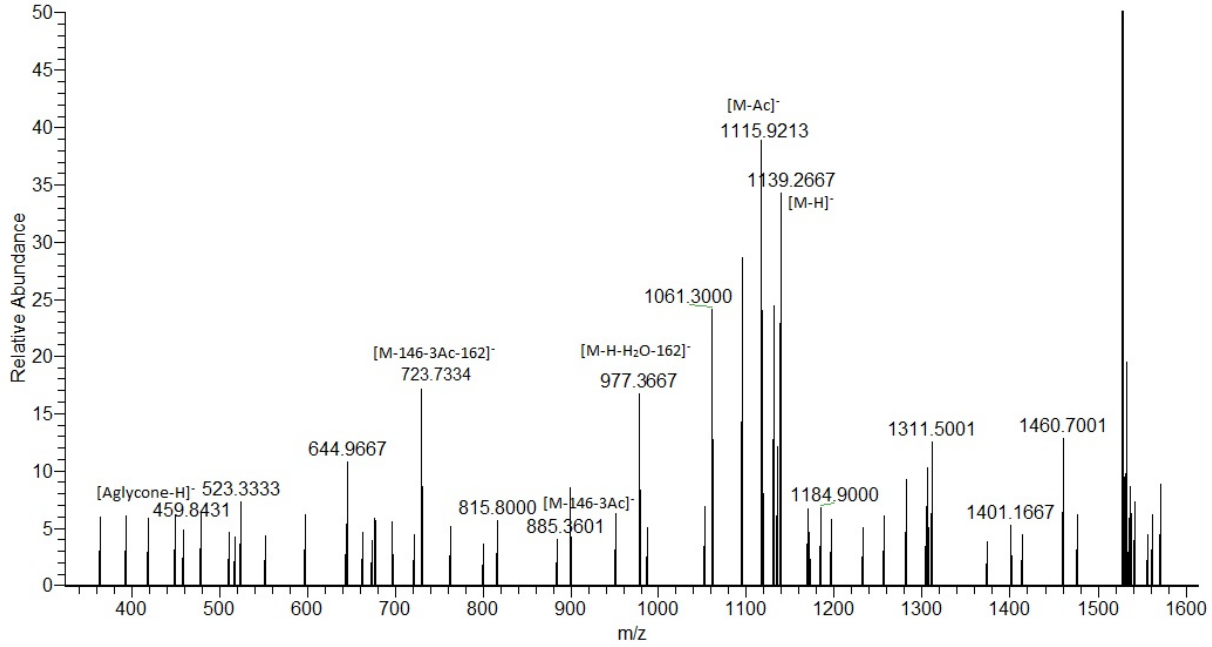
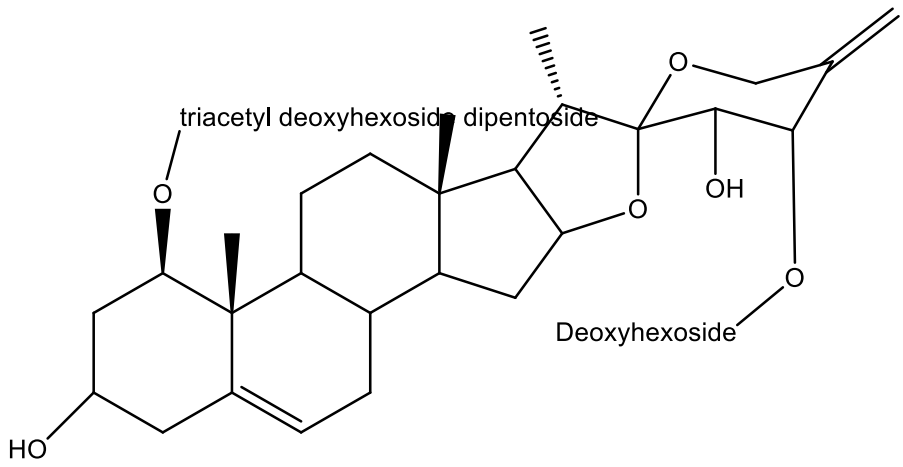


Figure 2: Peak 2: Tetrahydroxy spirosta-diene- triacetyl deoxyhexoside dipentoside deoxyhexose [M-H]$^-$: 1141.



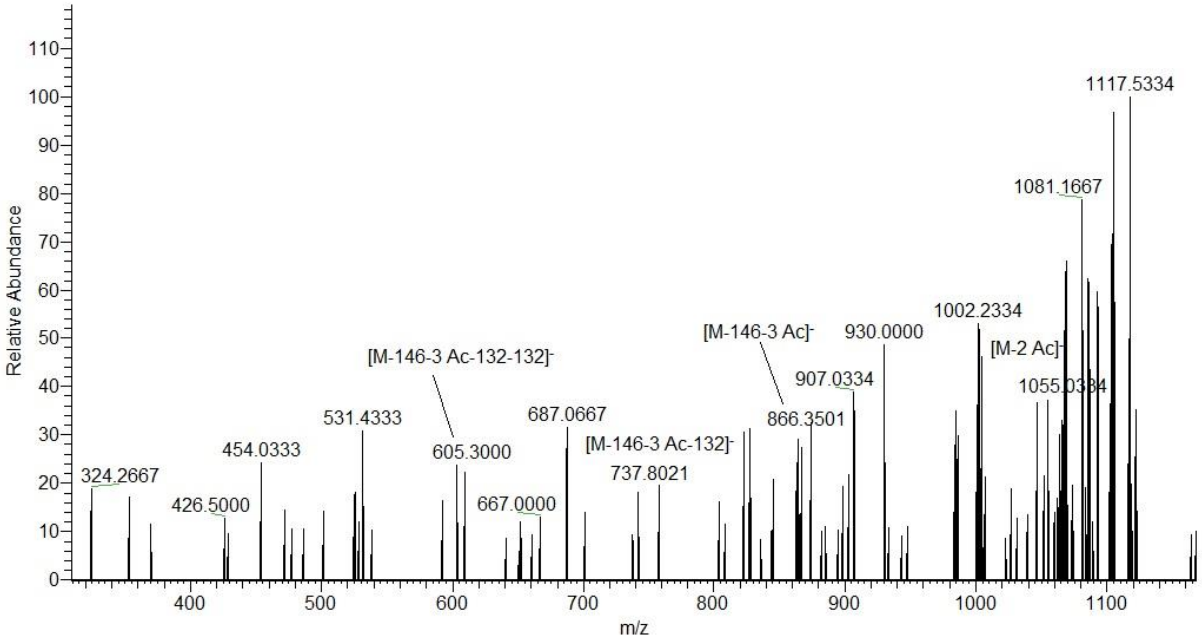


Figure 3: Peak 3: Raffinose $[M-H]^-$: 503.

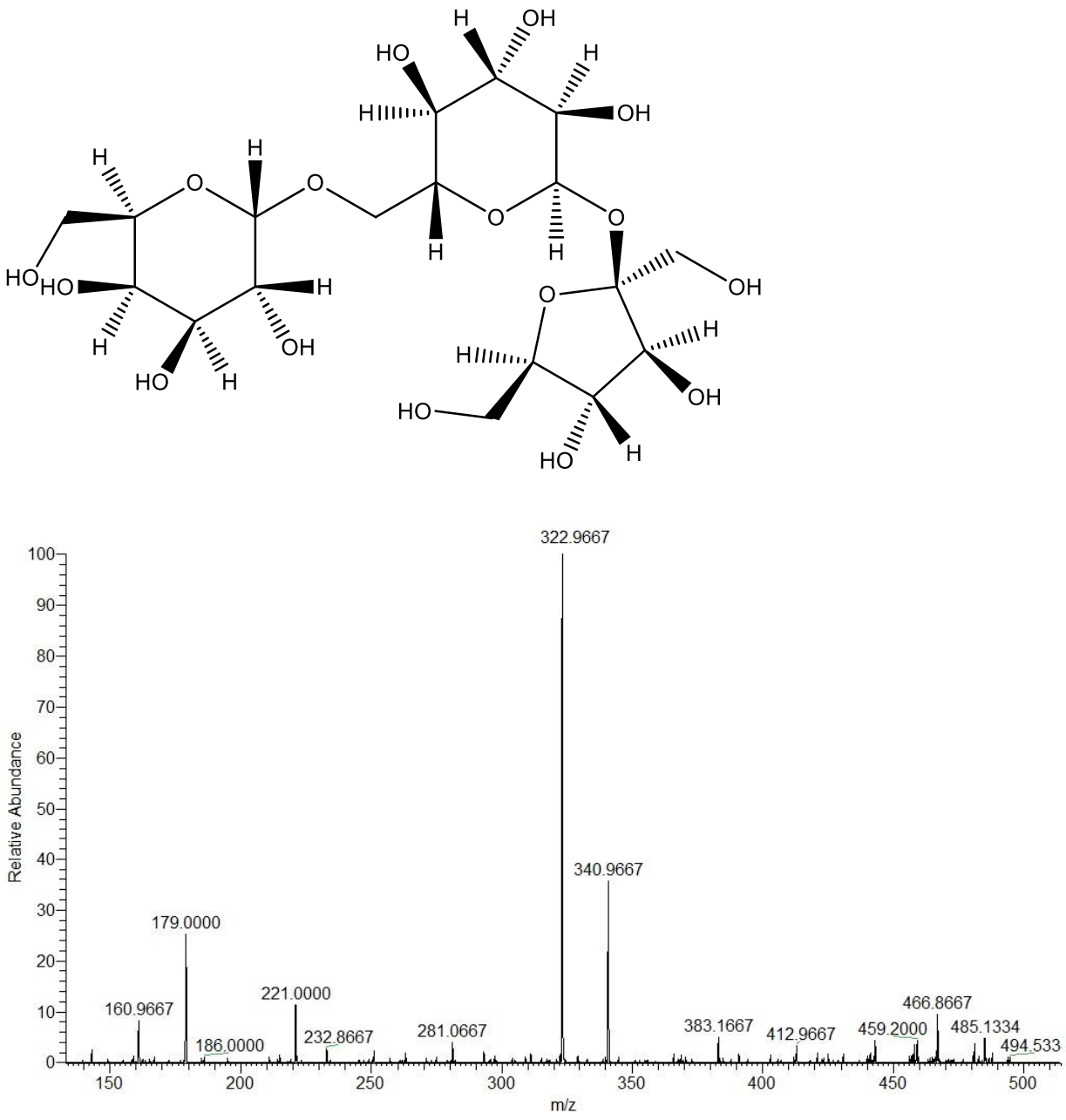
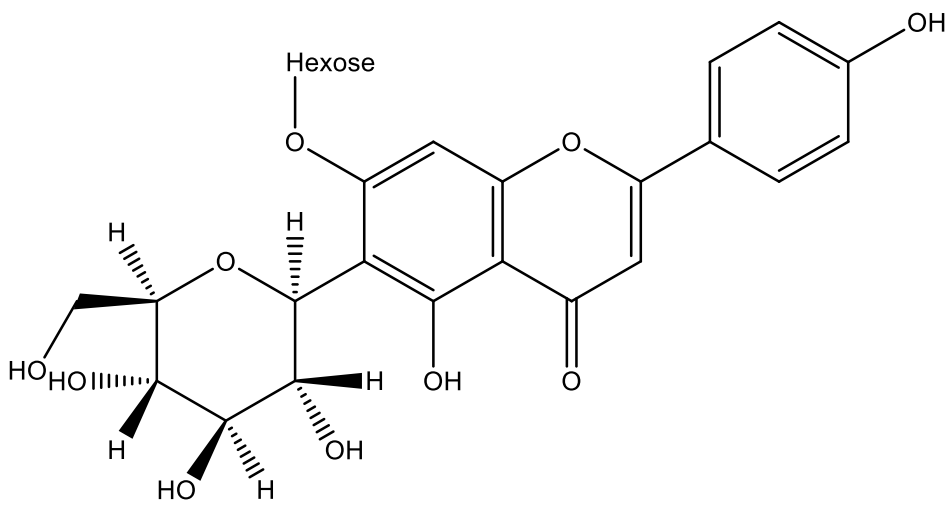


Figure 4: Peak 4: Isovitexin hexoside $[M-H]^-$: 593.



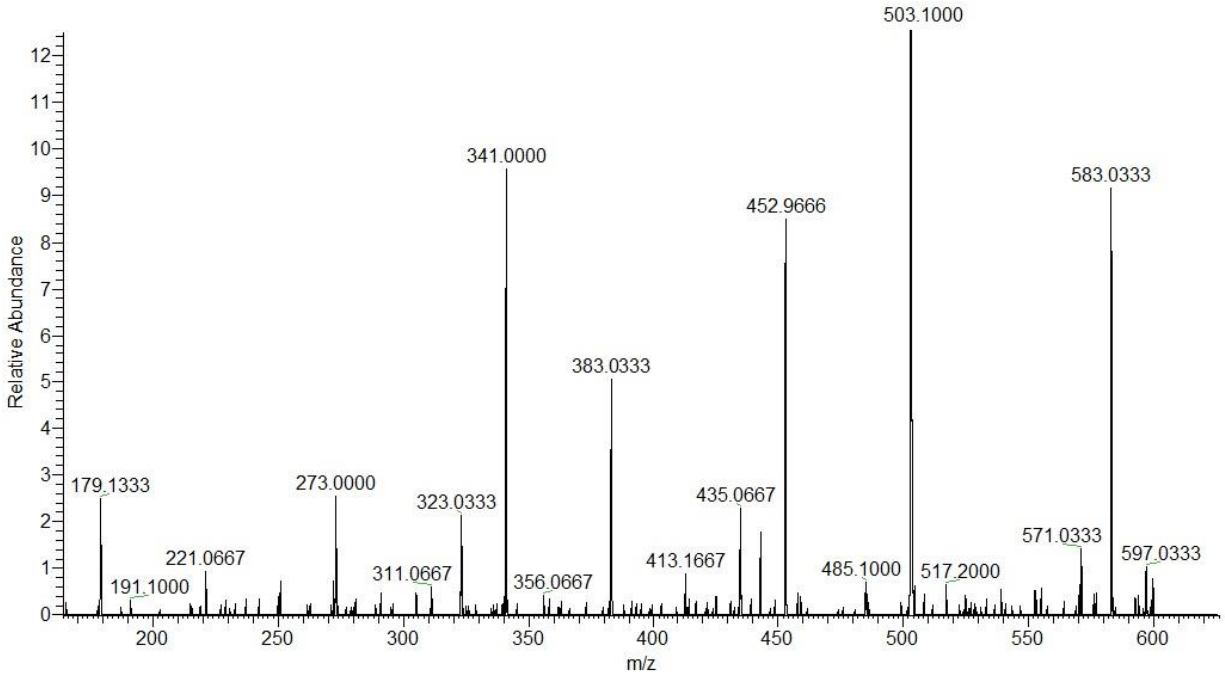


Figure 5: Peak 5: Tetrahydroxyspirosta-dien acetyldeoxyhexoside pentoside deoxyhexoside $[M-H]^-$: 925.

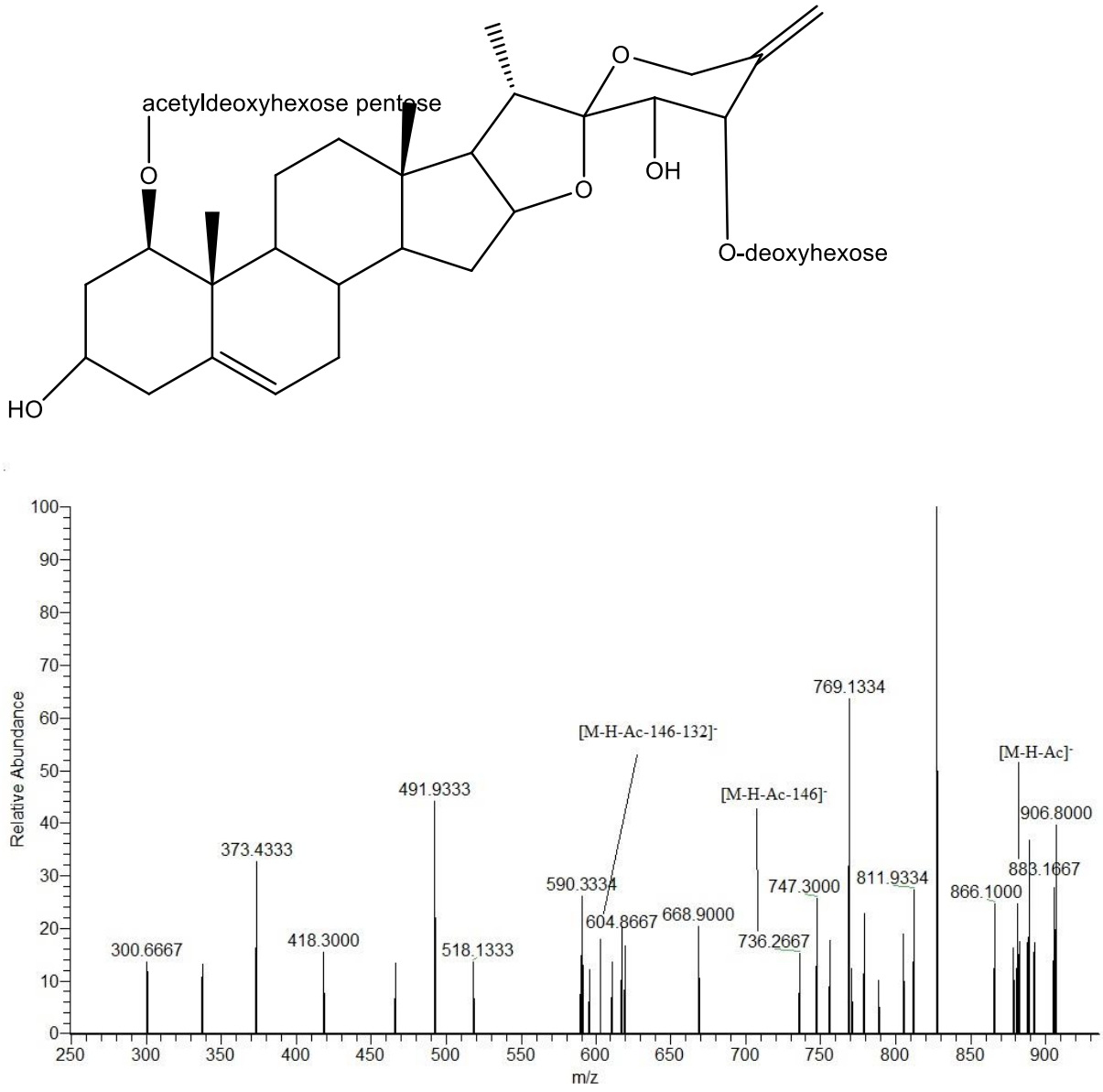


Figure 6: Peak 6: Aucubin $[M-H]^-$: 345.

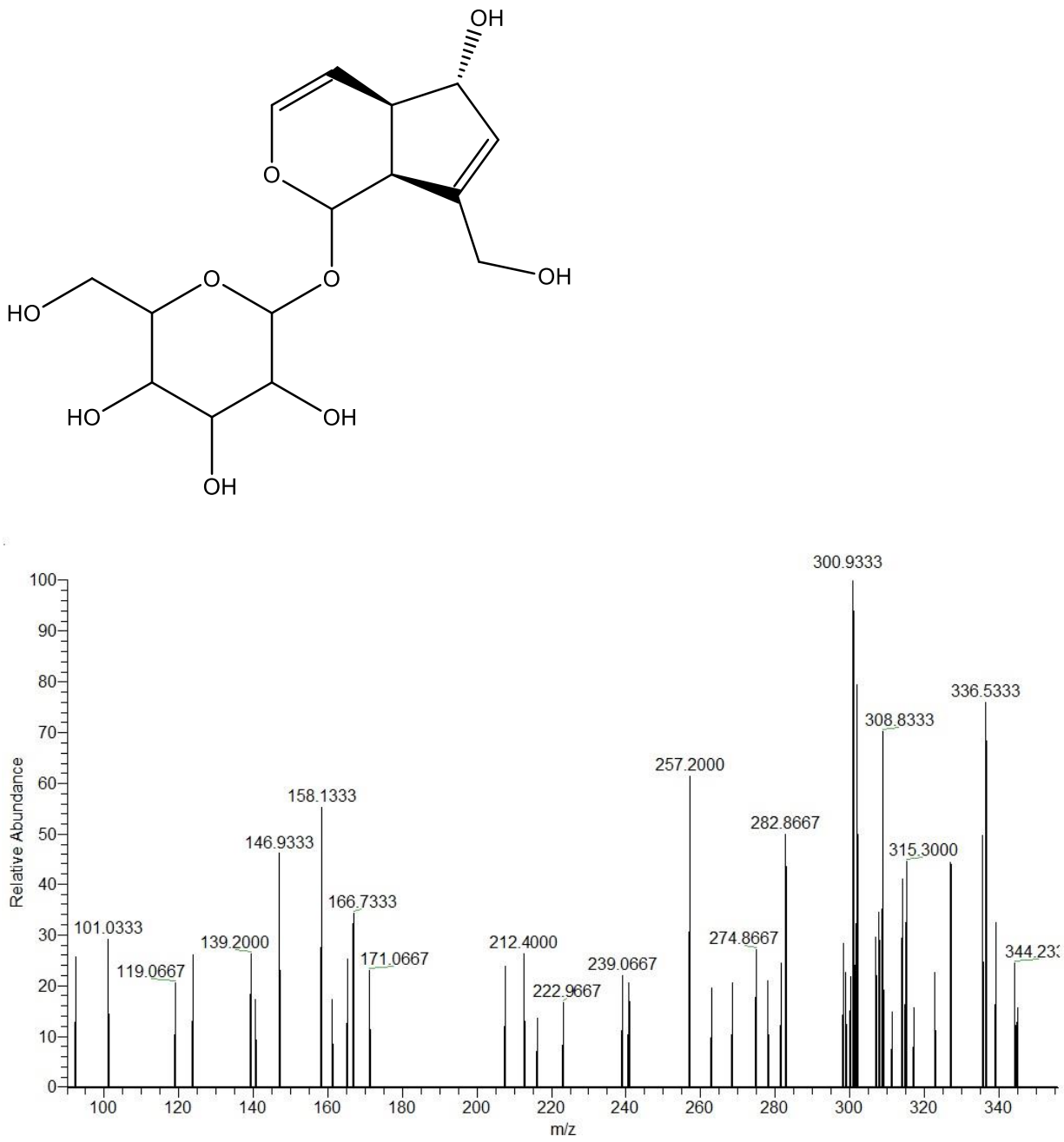
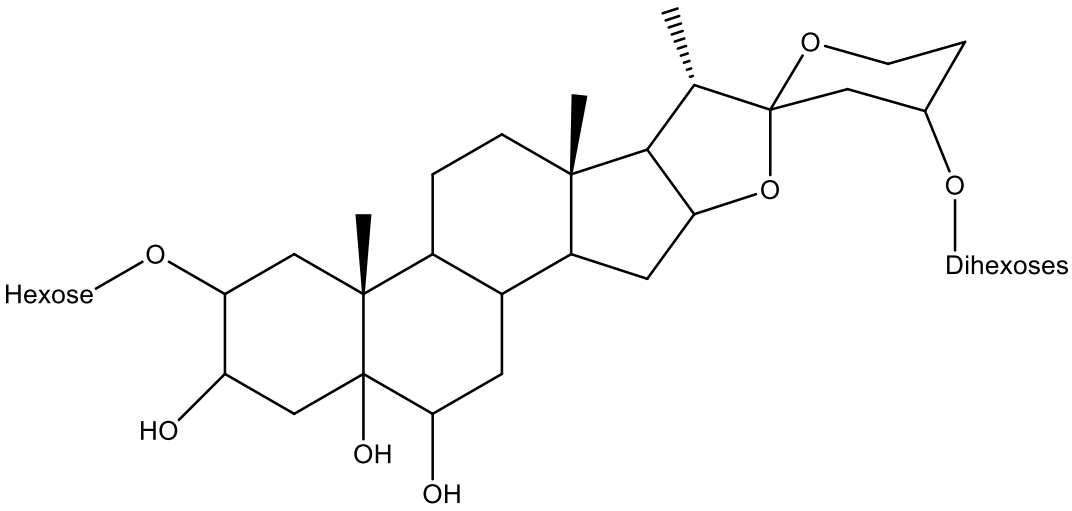


Figure 7: Peak 7: Pentahydroxy spirostane trihexoside $[M-H]^-$: 965.


Hexose
O
HO
OH
OH
O
O
O
Dihexoses

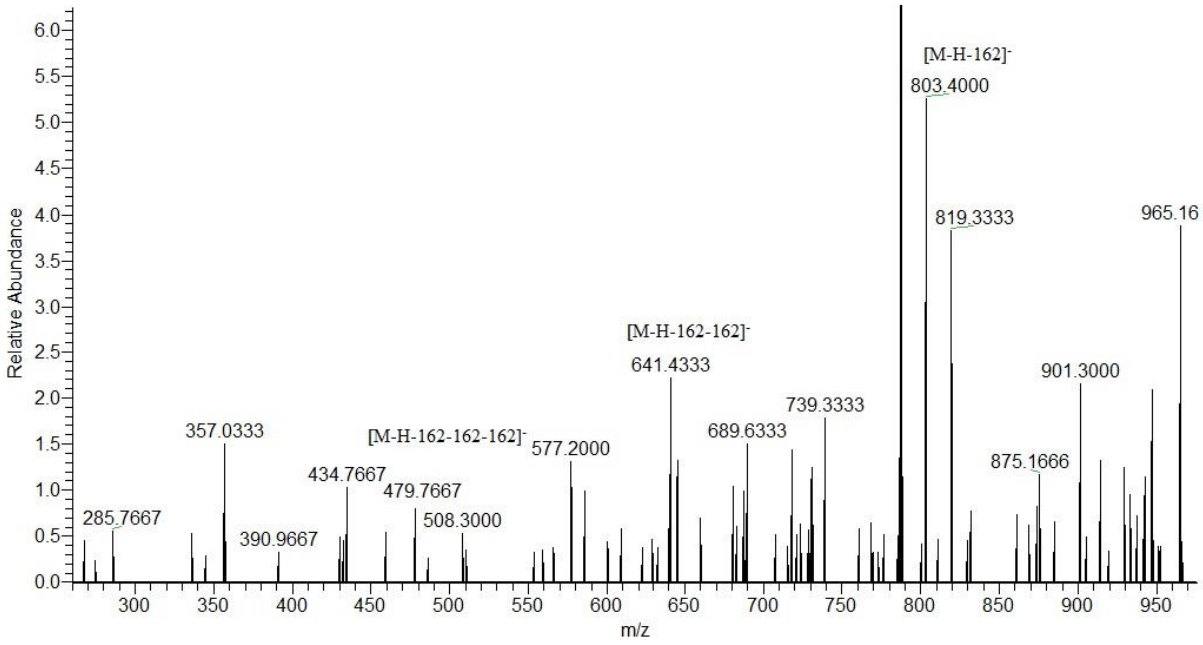
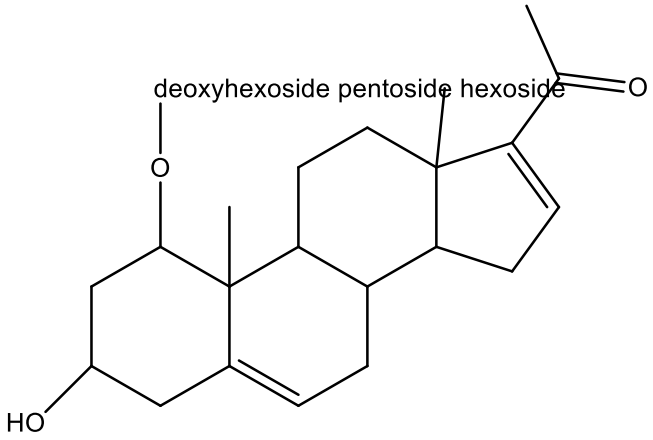

Relative Abundance
m/z
[M-H-162]-
803.4000
819.3333
965.16
[M-H-162-162]-
641.4333
901.3000
739.3333
689.6333
875.1666
357.0333
[M-H-162-162-162]-
577.2000
434.7667
479.7667
508.3000
285.7667
390.9667

Figure 8: Peak 8: Dihydroxypregna-5,16-dien-20-one deoxyhexoside pentoside hexoside $[M-H]^-$: 769.



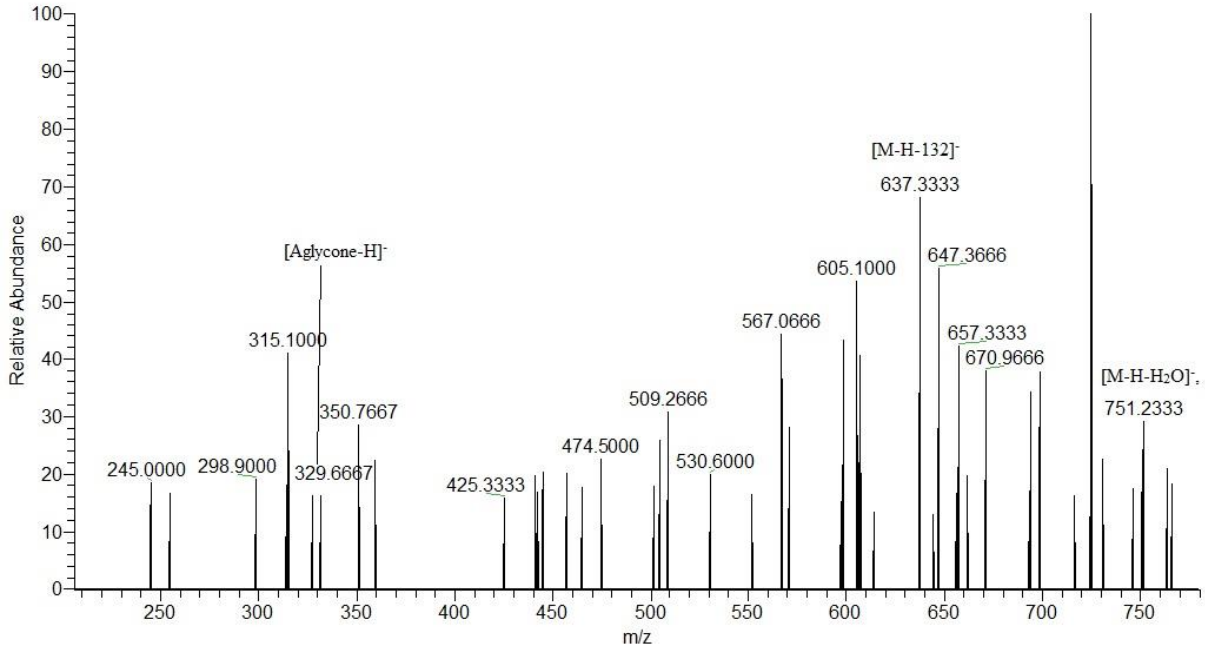
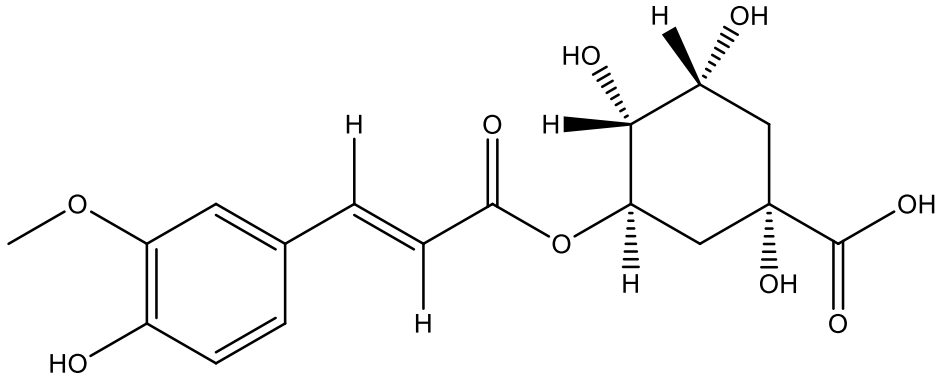


Figure 9: Peak 9: feruloylquinic acid $[M-H]^-$: 367.



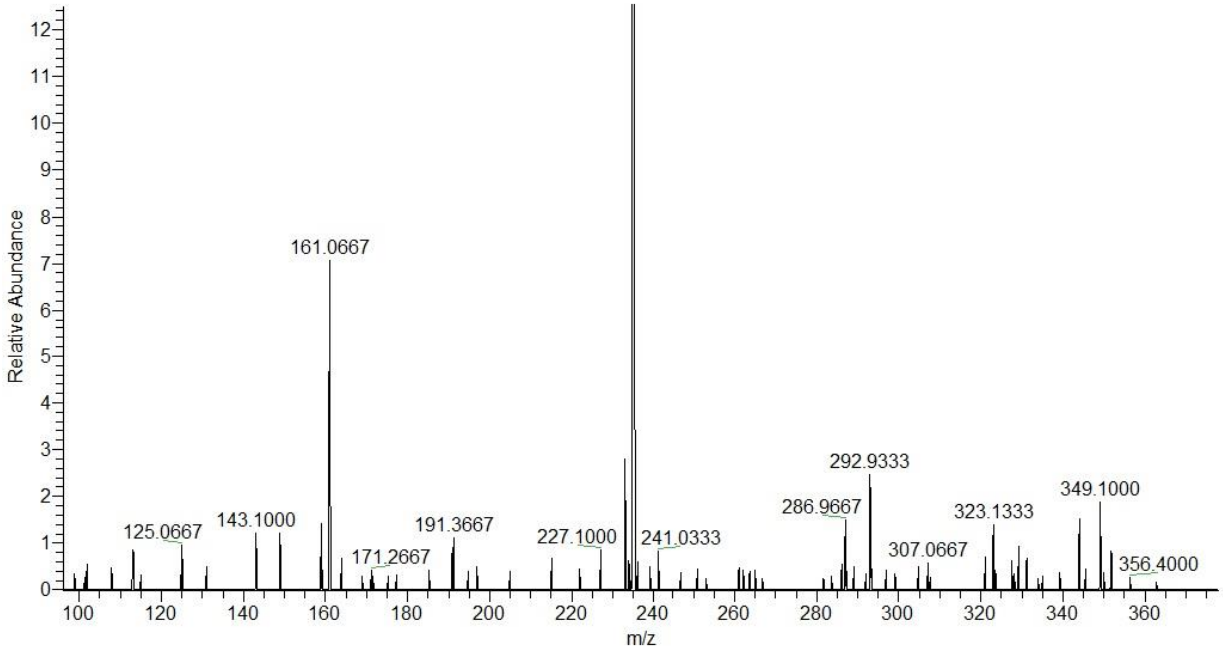
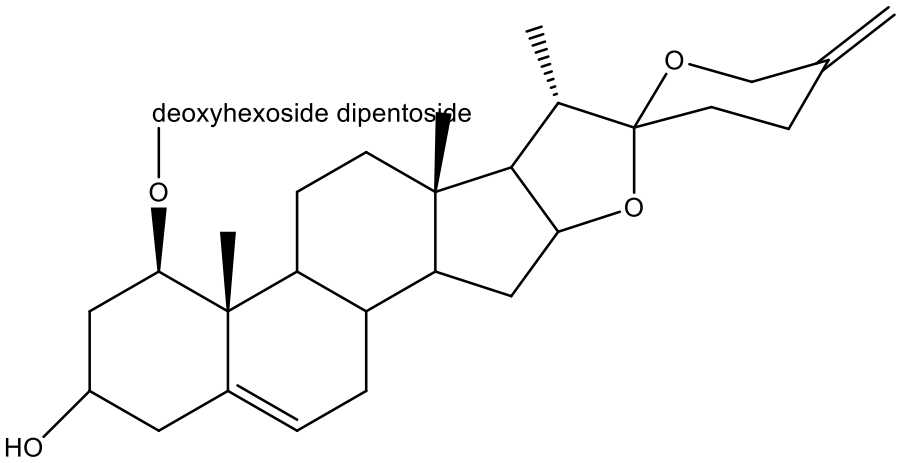


Figure 10: Peak 10: Neoruscogenin deoxyhexoside dipentoside $[M-H]^-$: 837.



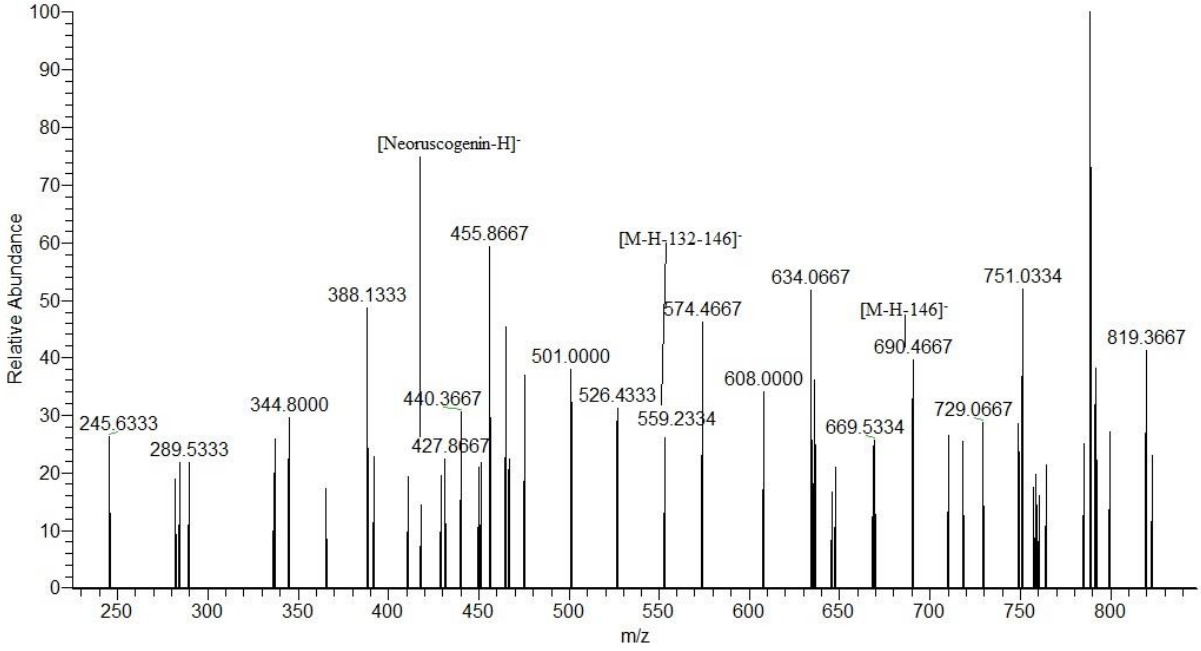
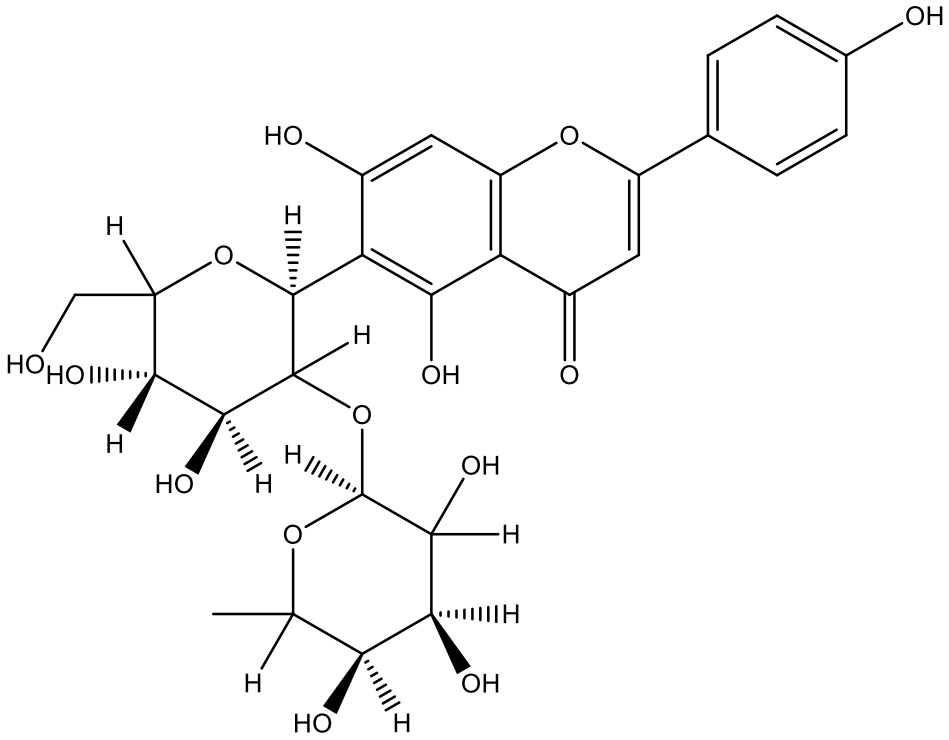


Figure 11: Peak 11: Isovitexin deoxyhexoside $[M-H]^-$: 577.



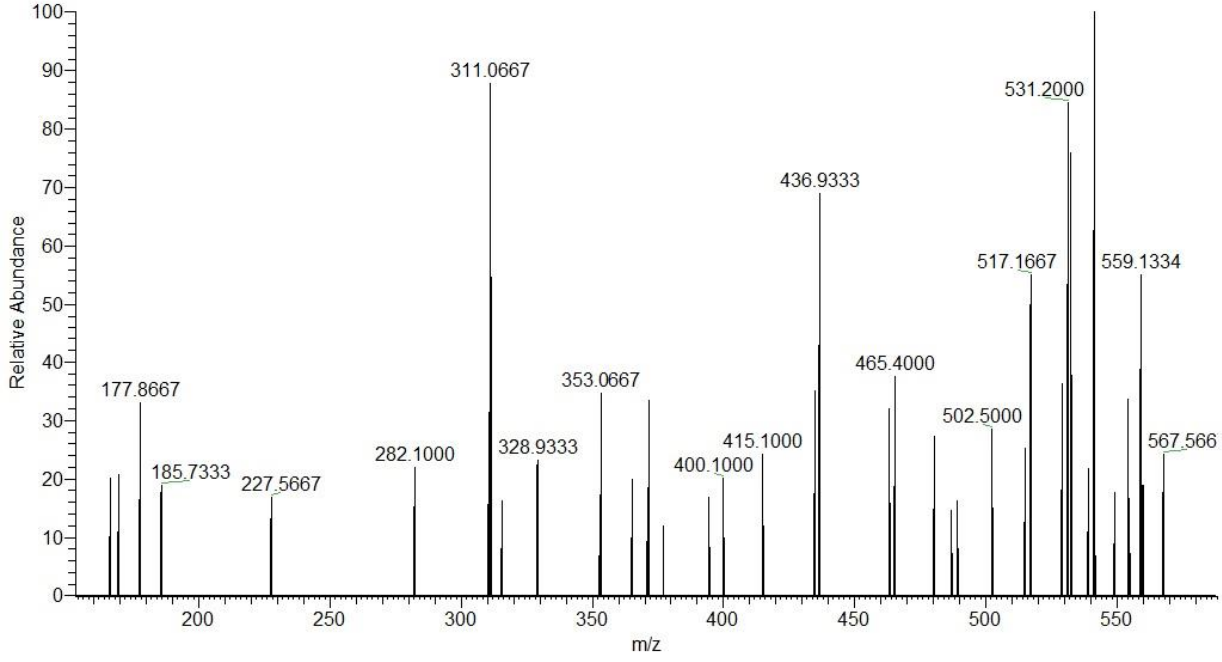
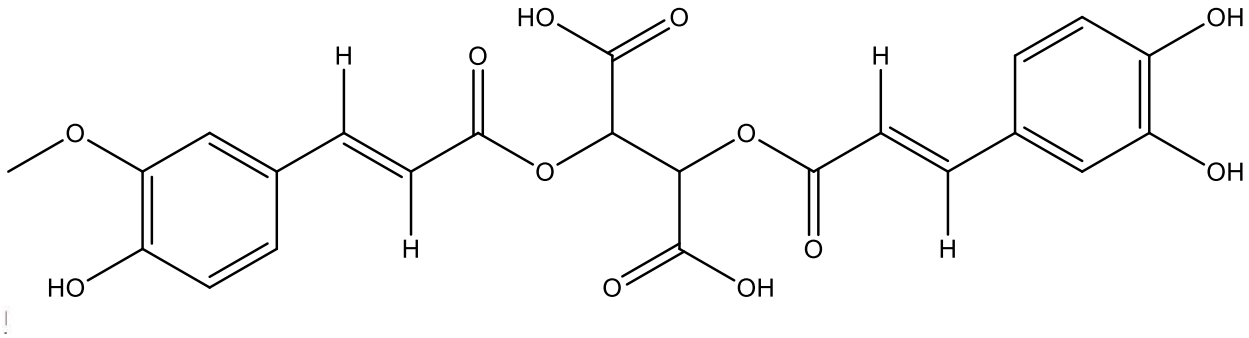


Figure 12: Peak 12: caffeoyl–feruloyltartaric acid $[M-H]^-$: 487.



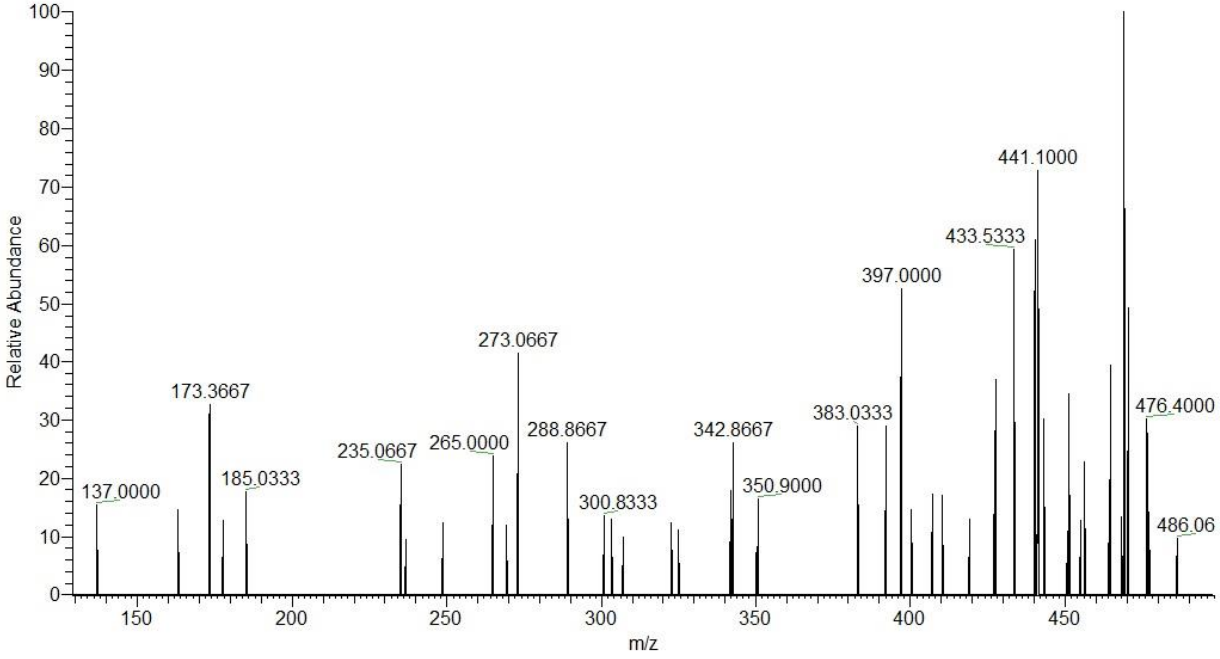
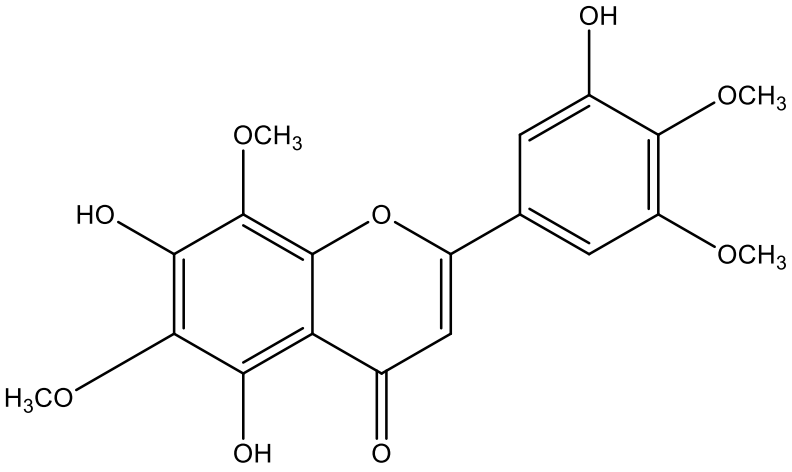


Figure 13: Peak 13: Scaposin $[M-H]^-$: 389.



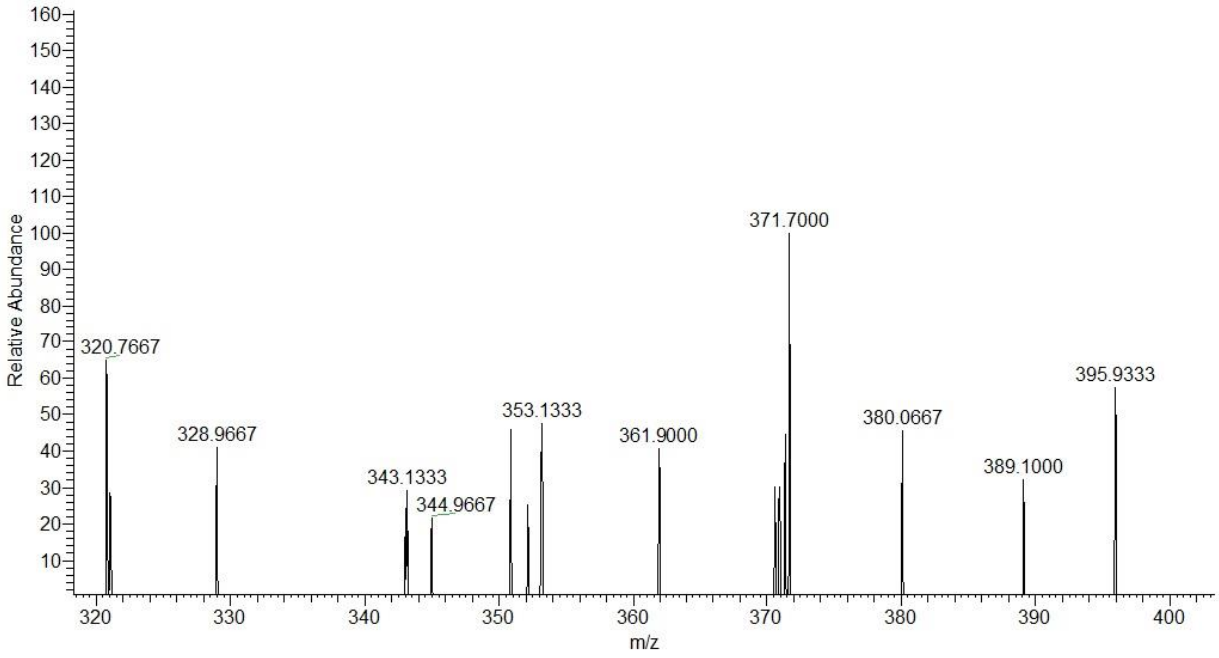
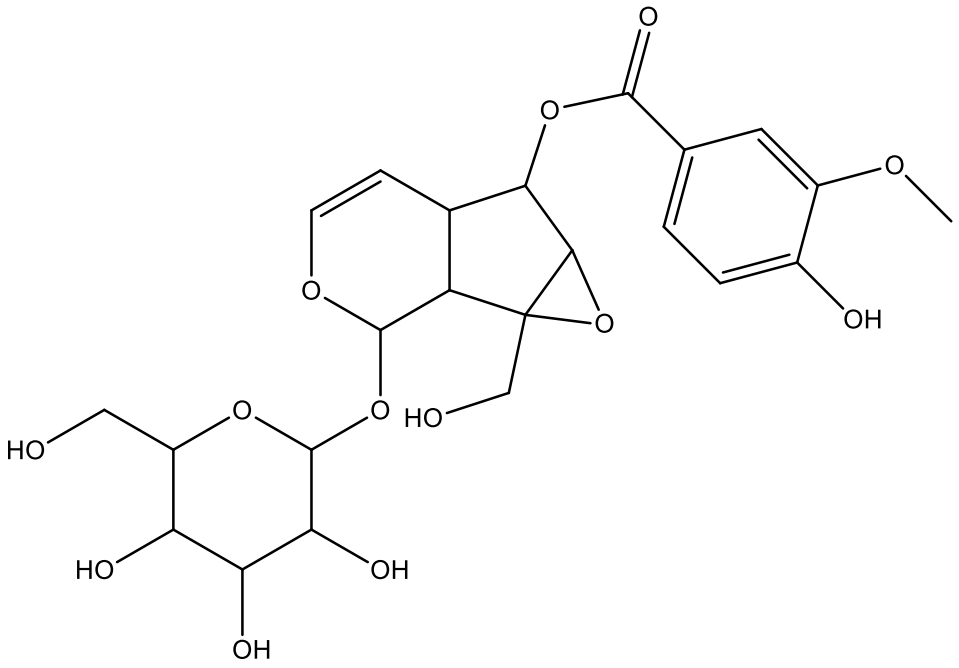


Figure 14: Peak 14: Picroside II $[M-H]^-$: 511.



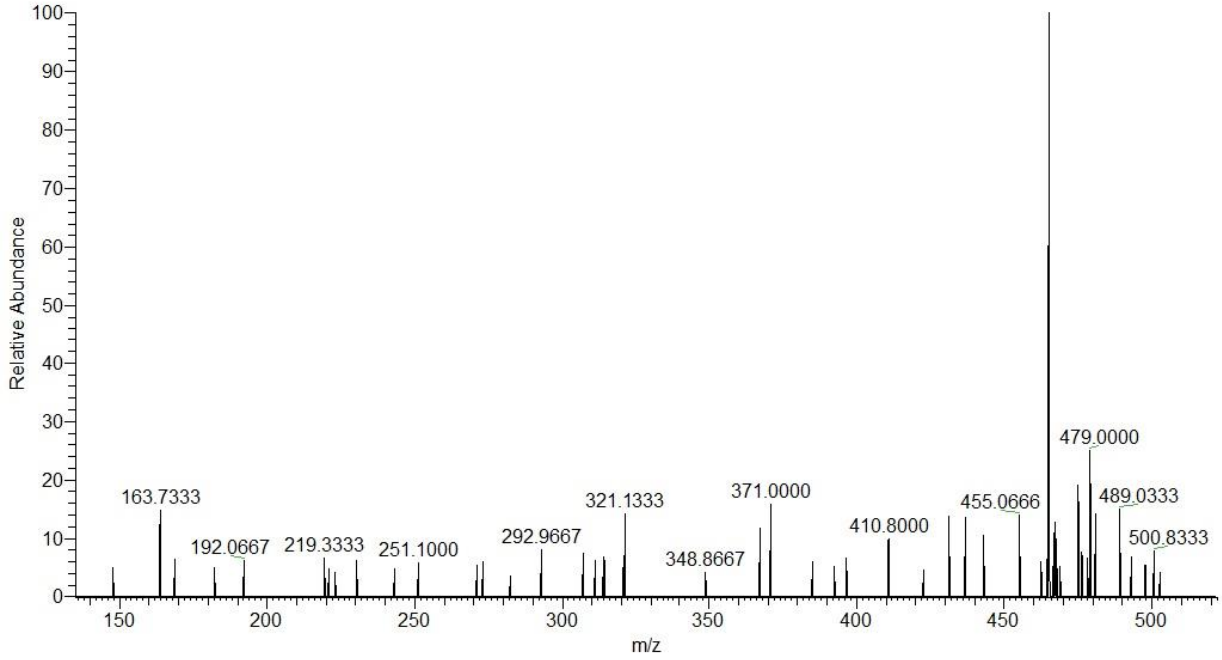
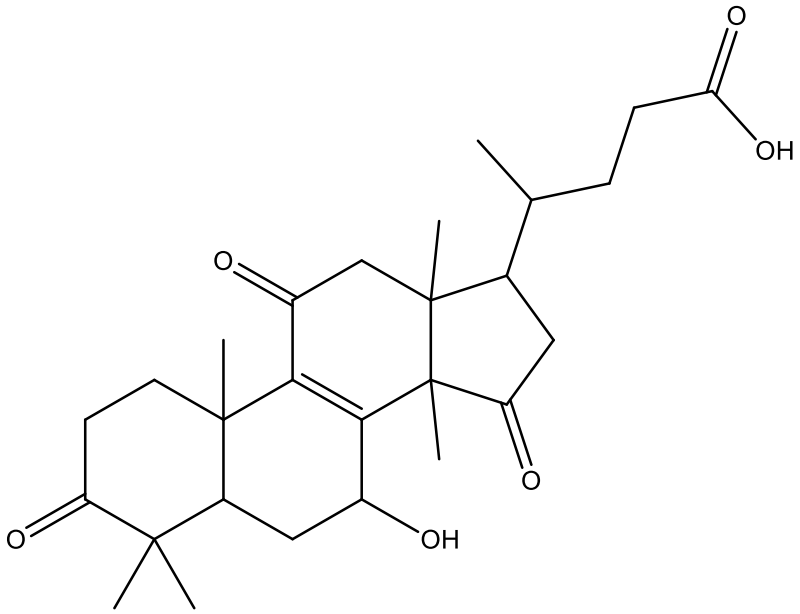


Figure 15: Peak 15: Lucidenic acid A $[M-H]^-$: 457.



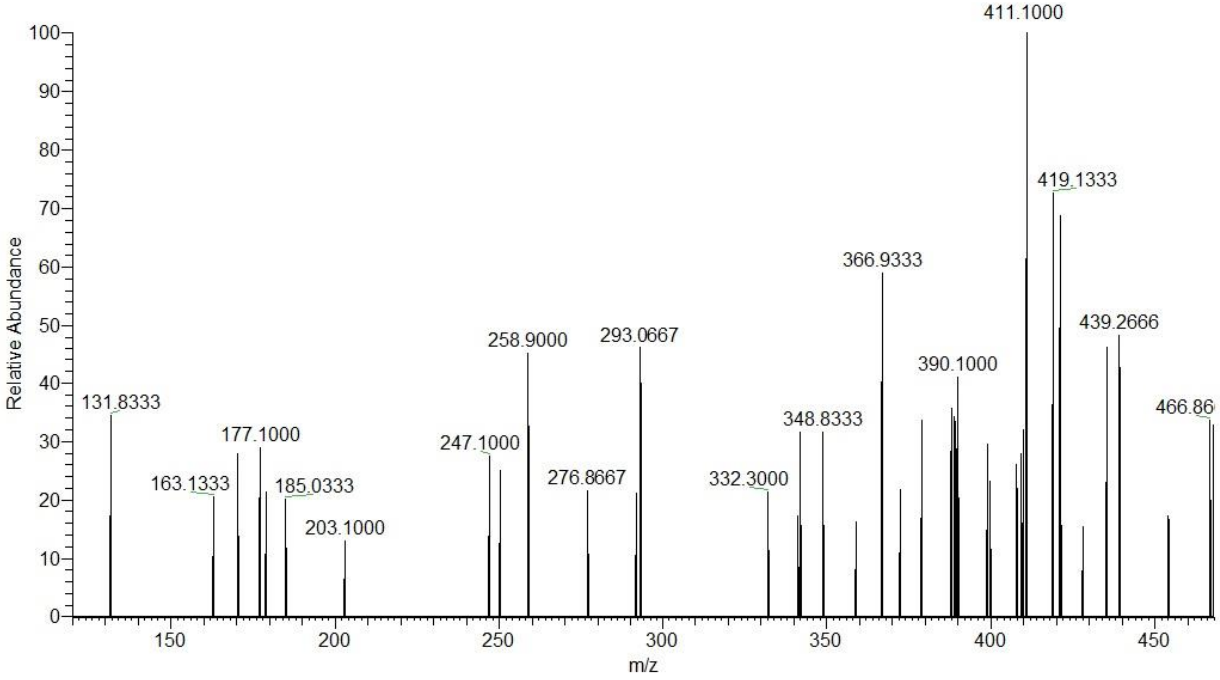
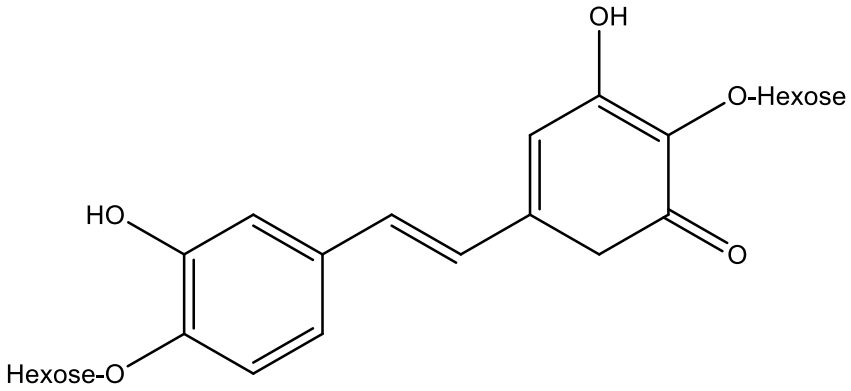


Figure 16: Peak 16: Hydroxyhispidin dihexoside [M-H]$^-$: 585.



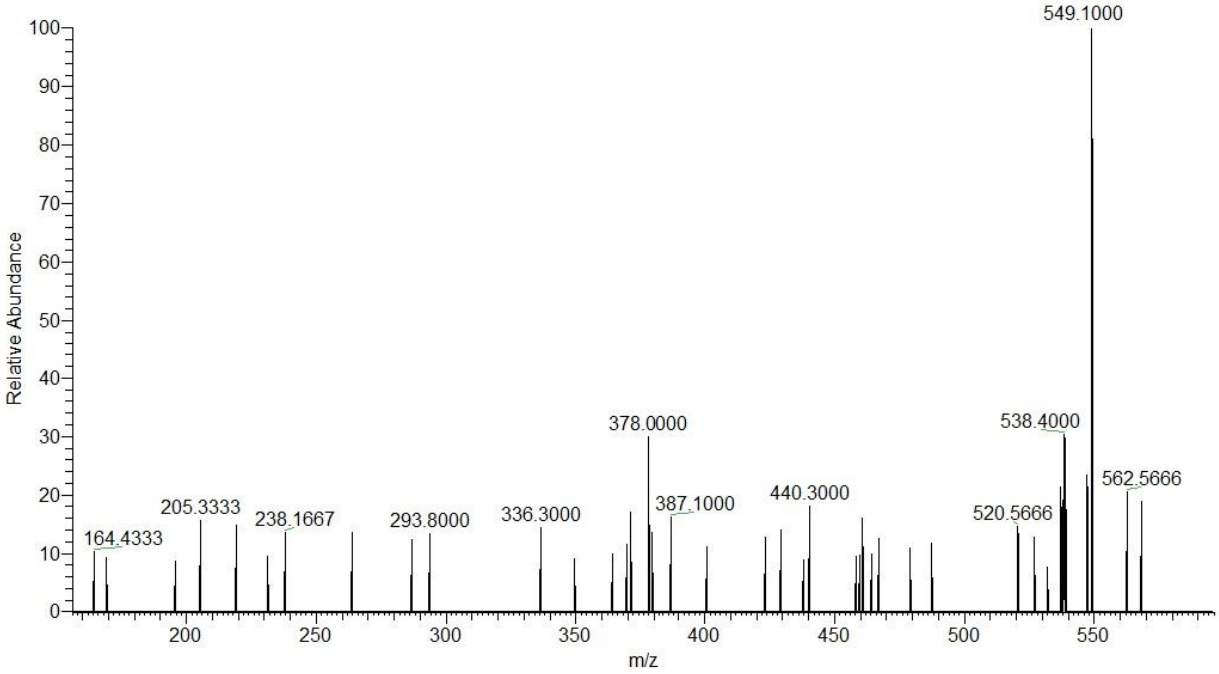
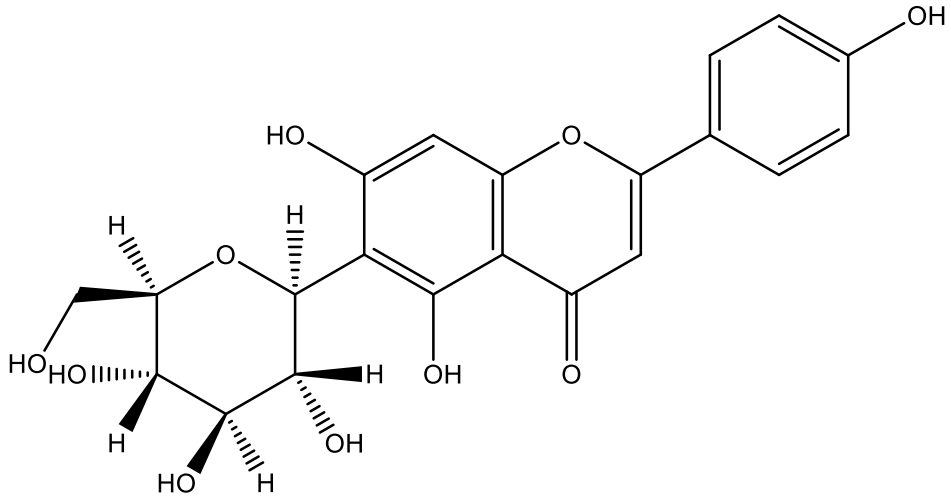


Figure 17: Peak 17: Isovitexin $[M-H]^-$: 431.



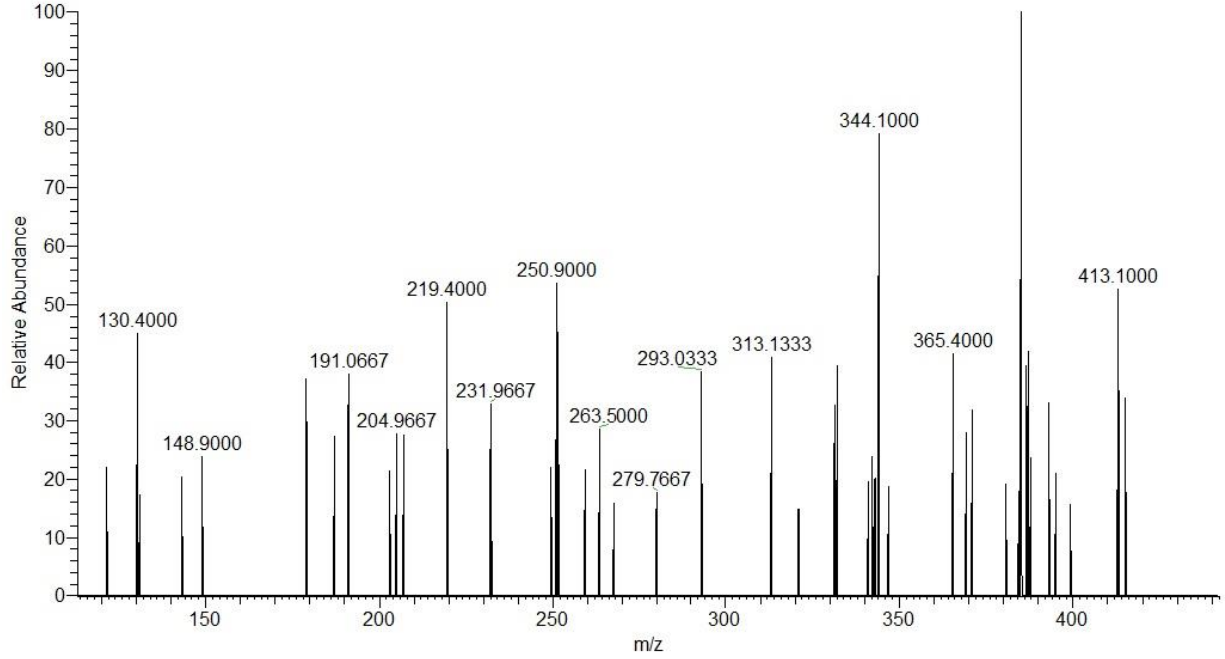
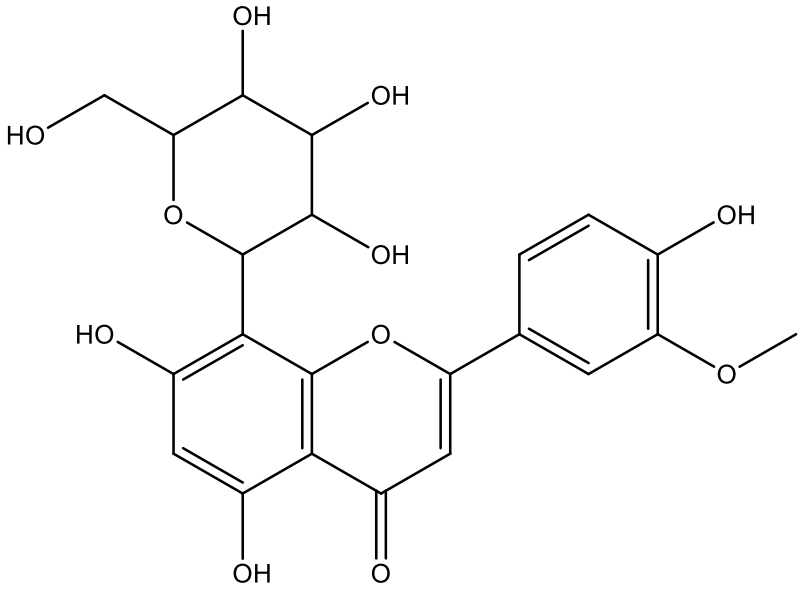


Figure 18: Peak 18: Scoparin (Chrysoeriol 8-C-glucoside) $[M-H]^-$: 461.



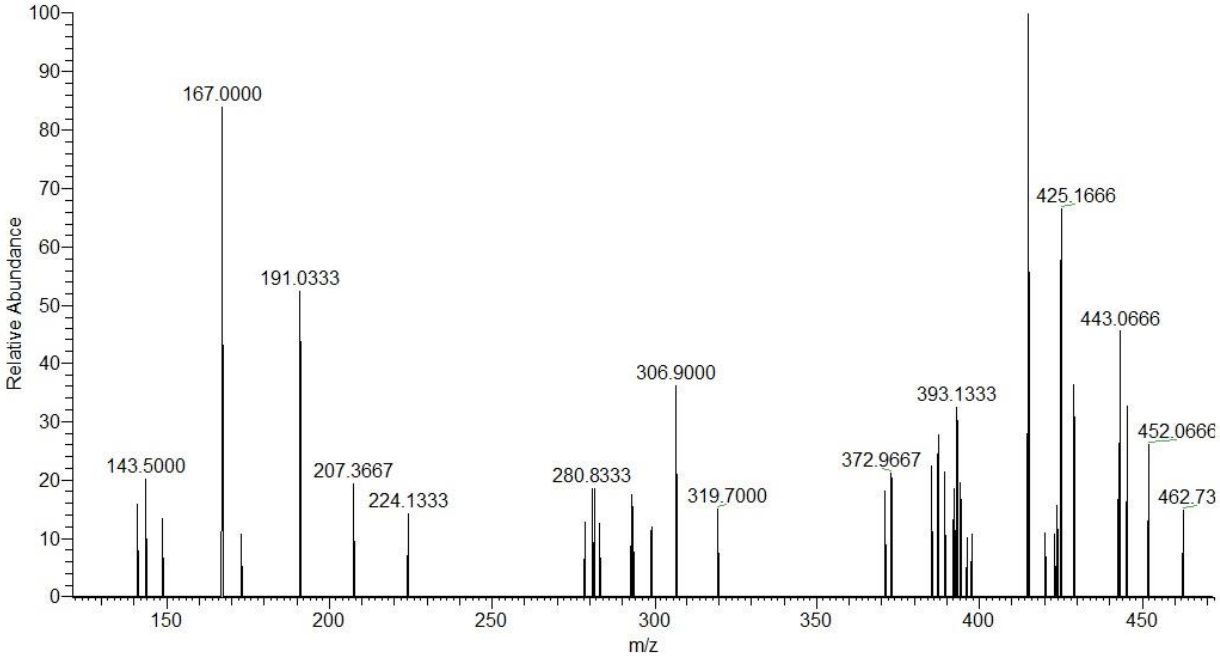
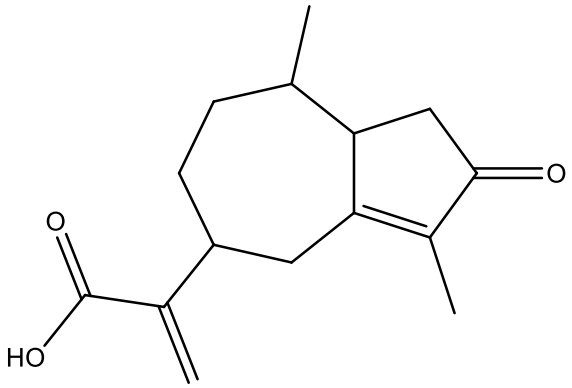


Figure 19: Peak 19: Pechueloic acid $[M-H]^-$: 247.



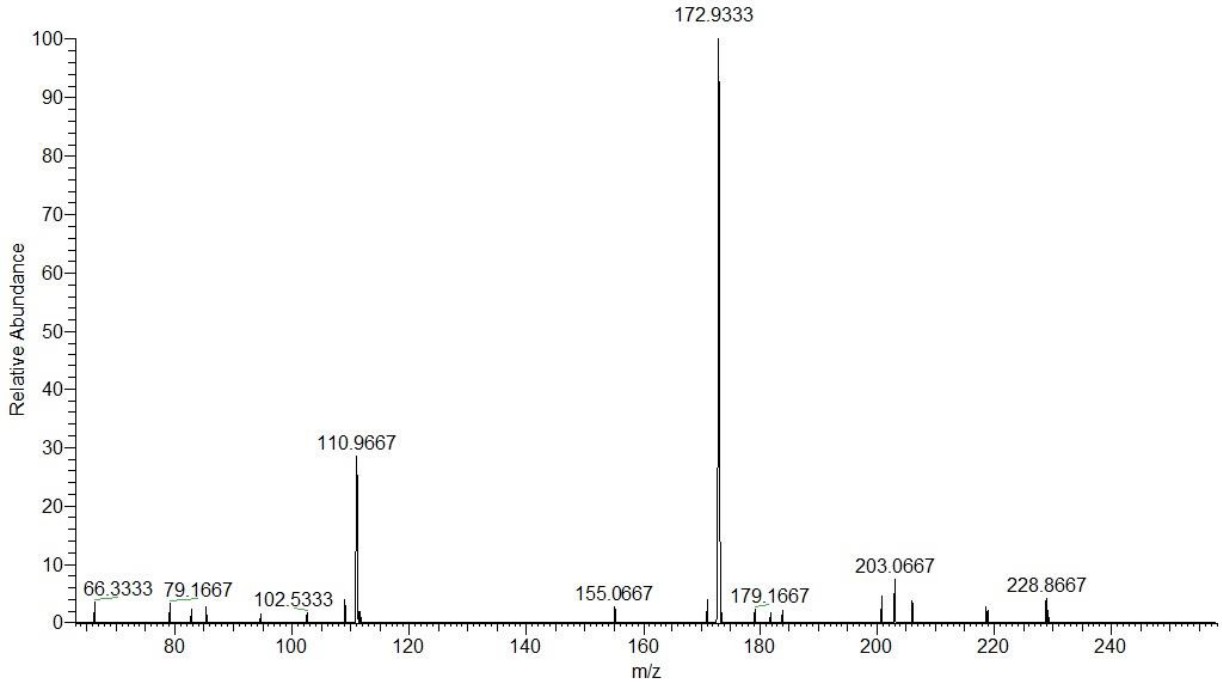
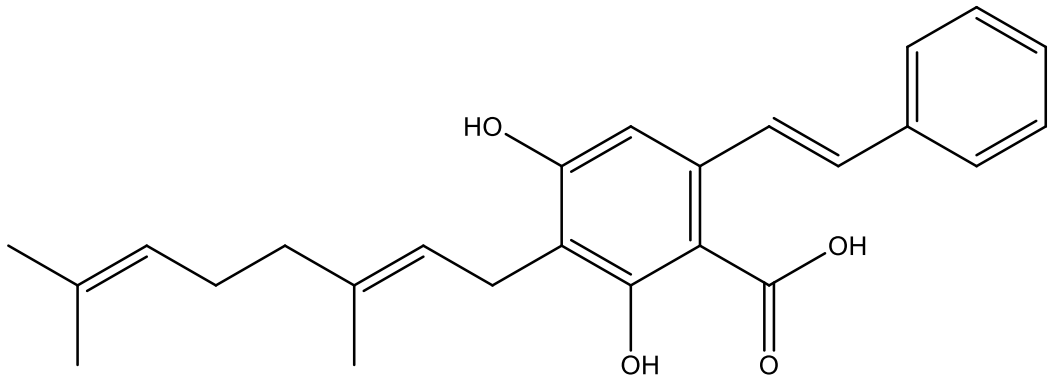


Figure 20: Peak 20: 3-[(2E)-3,7-dimethylocta-2,6-dienyl]-2,4-dihydroxy-6-[(E)-2-phenylethenyl] benzoic acid $[M-H]^-$: 391.



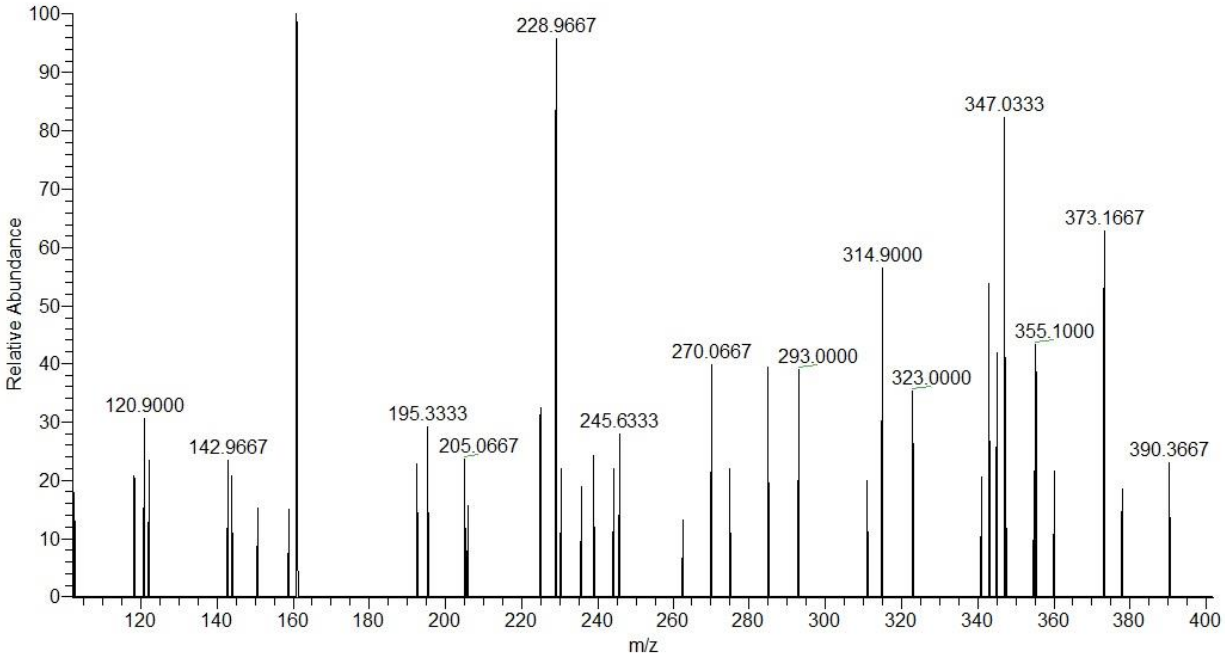
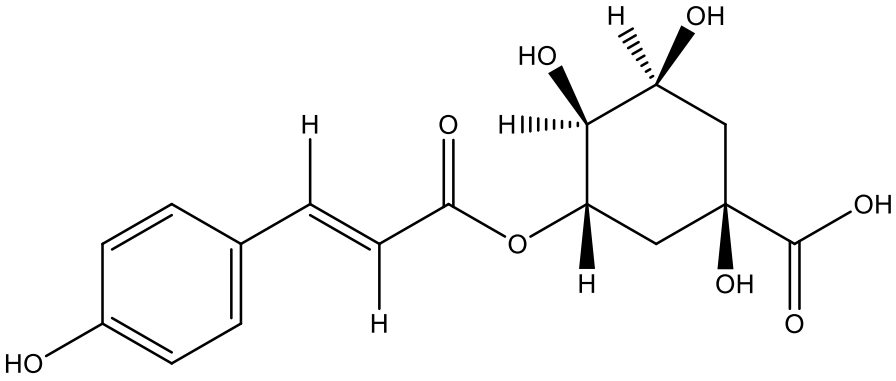


Figure 21: Peak 21: Coumaroylquinic acid $[M-H]^-$: 337.



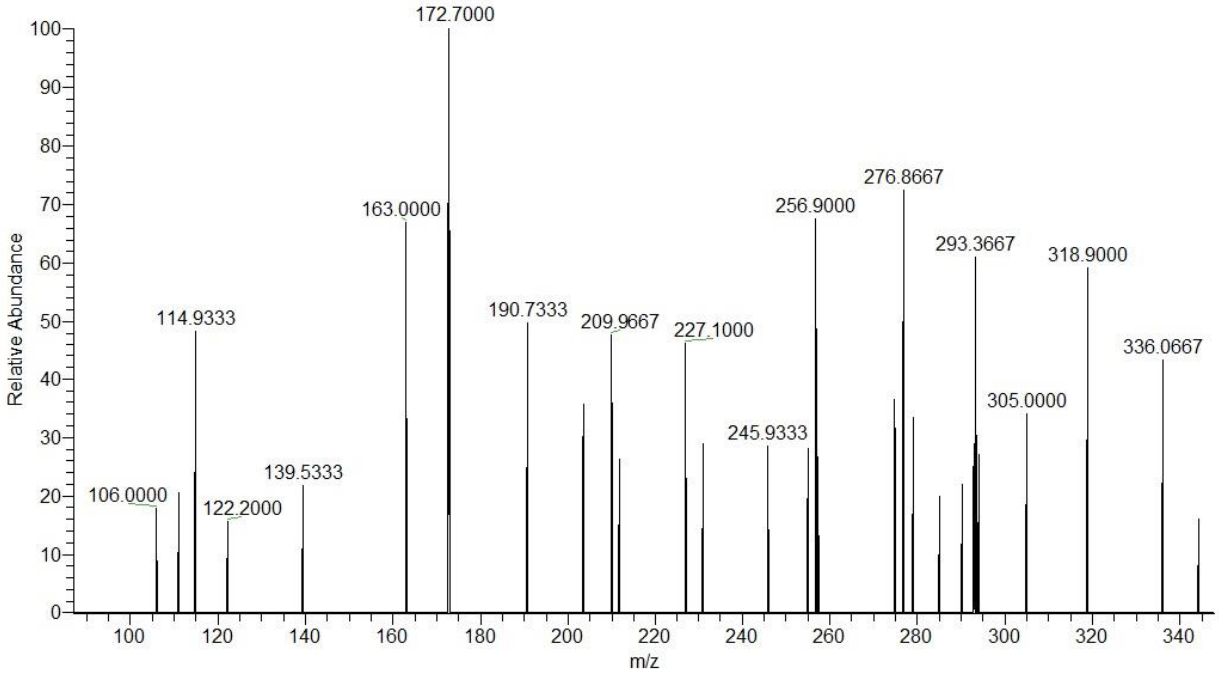
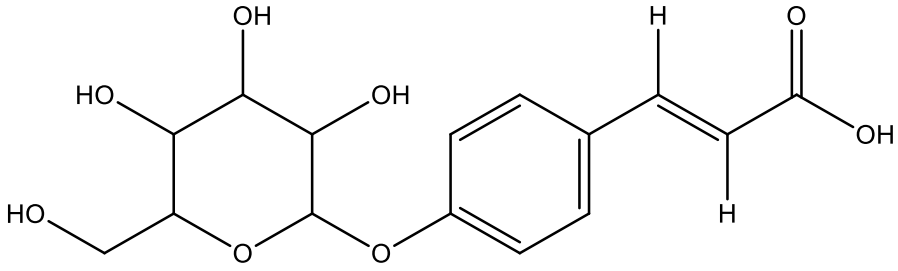


Figure 22: Peak 22: Coumaric acid hexoside $[M-H]^-$: 325.



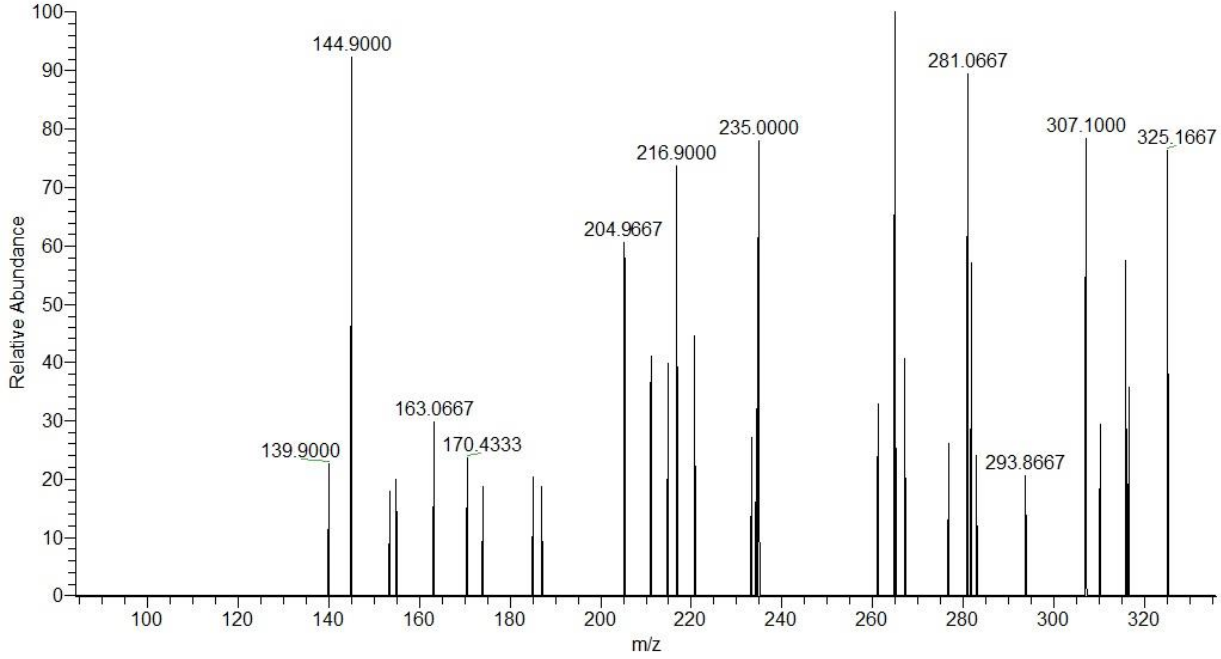
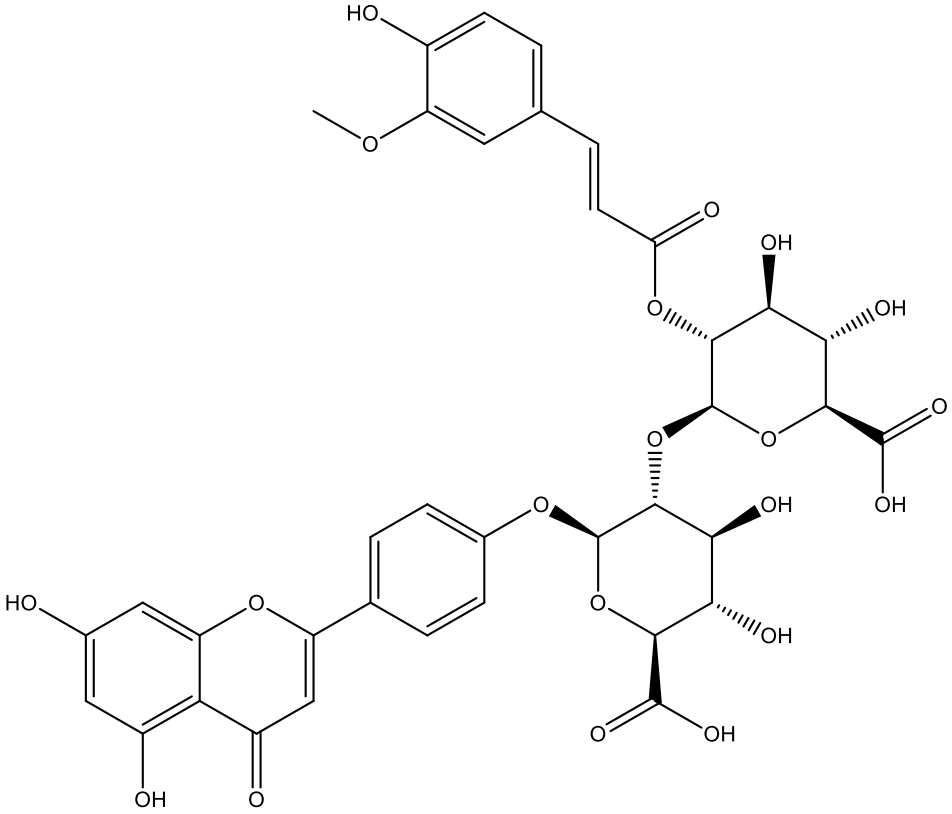


Figure 23: Peak 23: 4'-O-(2'-Feruloylglucuronyl)-(1-2)-glucuronyl Apigenin [M-H]$^-$: 797.



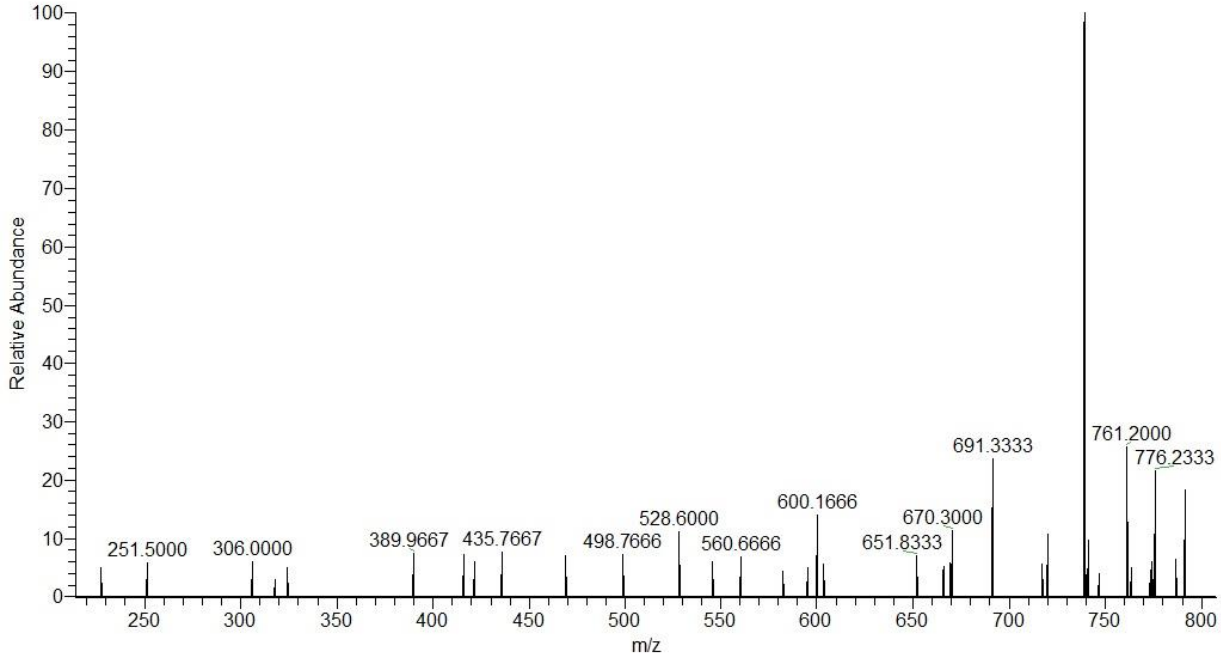
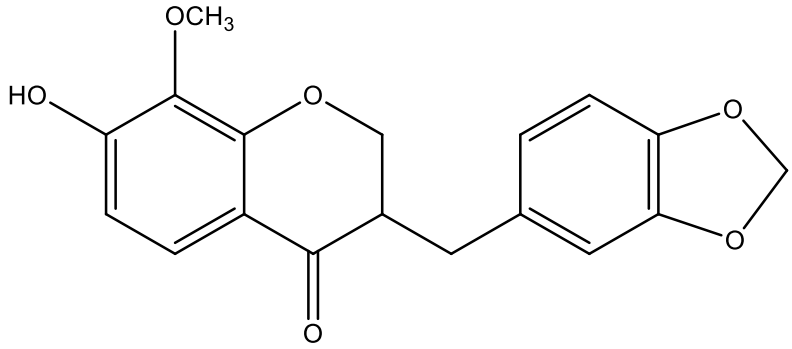


Figure 24: Peak 24: Trifasciatine A $[M-H]^-$: 327.



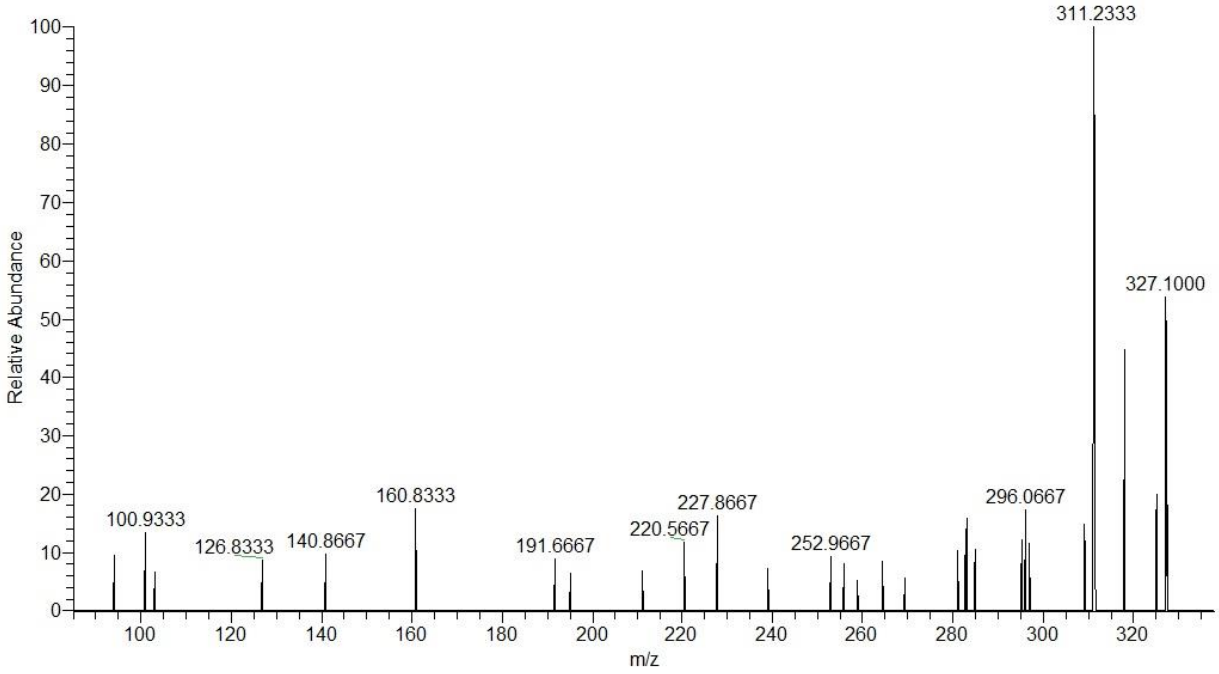
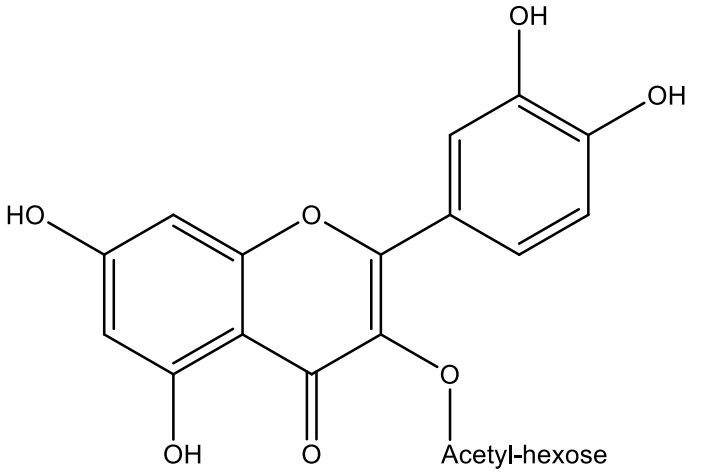


Figure 25: Peak 25: Quercetin acetyl-hexoside [M-H]$^{-}$: 505.



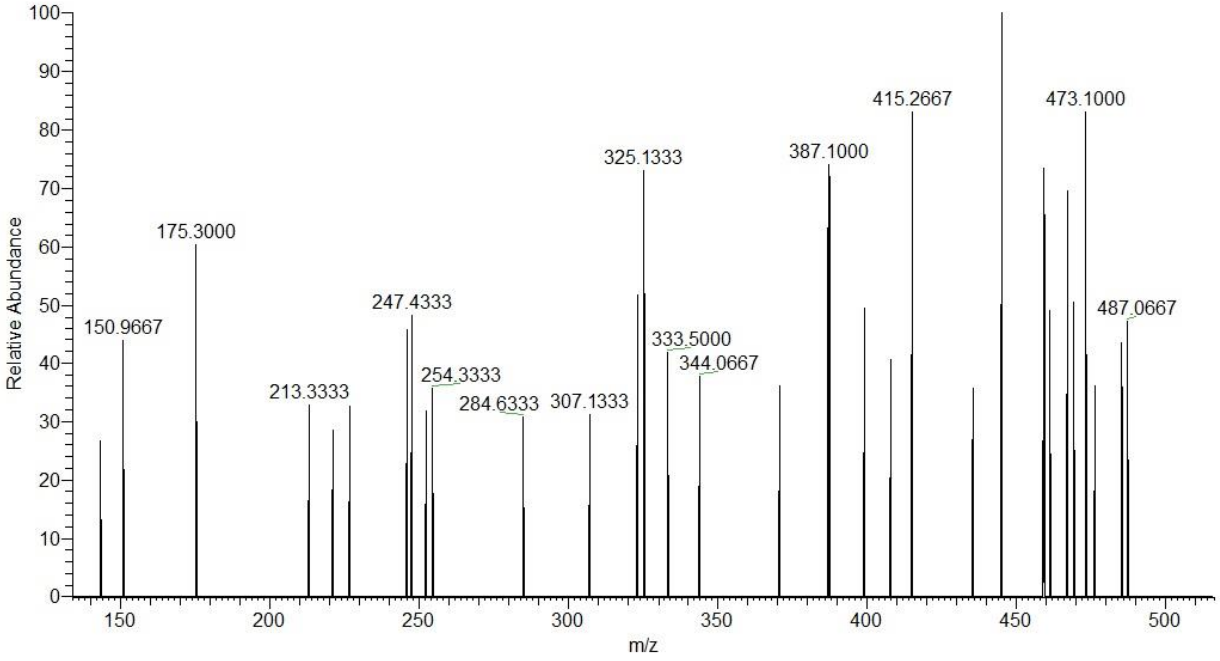
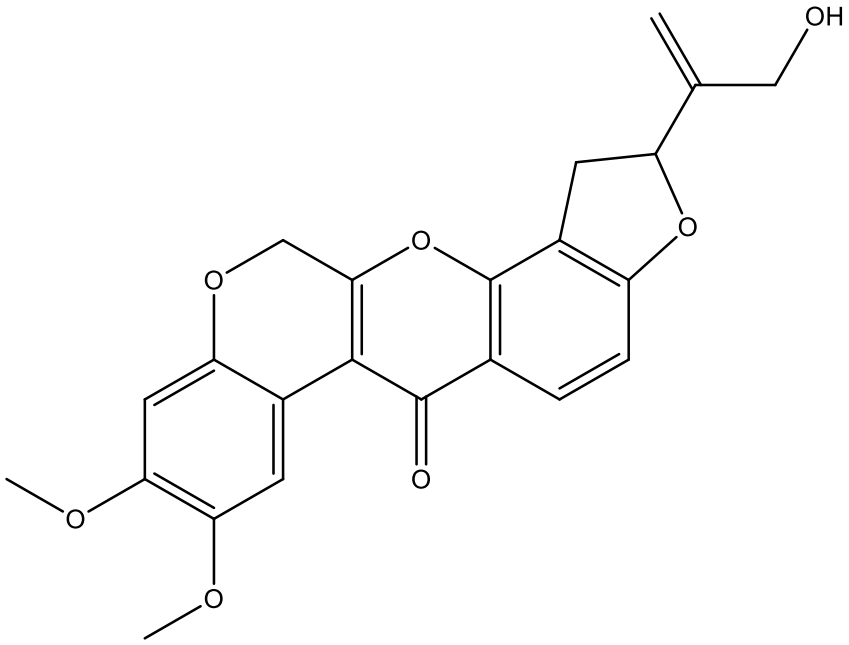


Figure 26: Peak 26: 6a,12a-Didehydroamorphigenin $[M-H]^-$: 407.



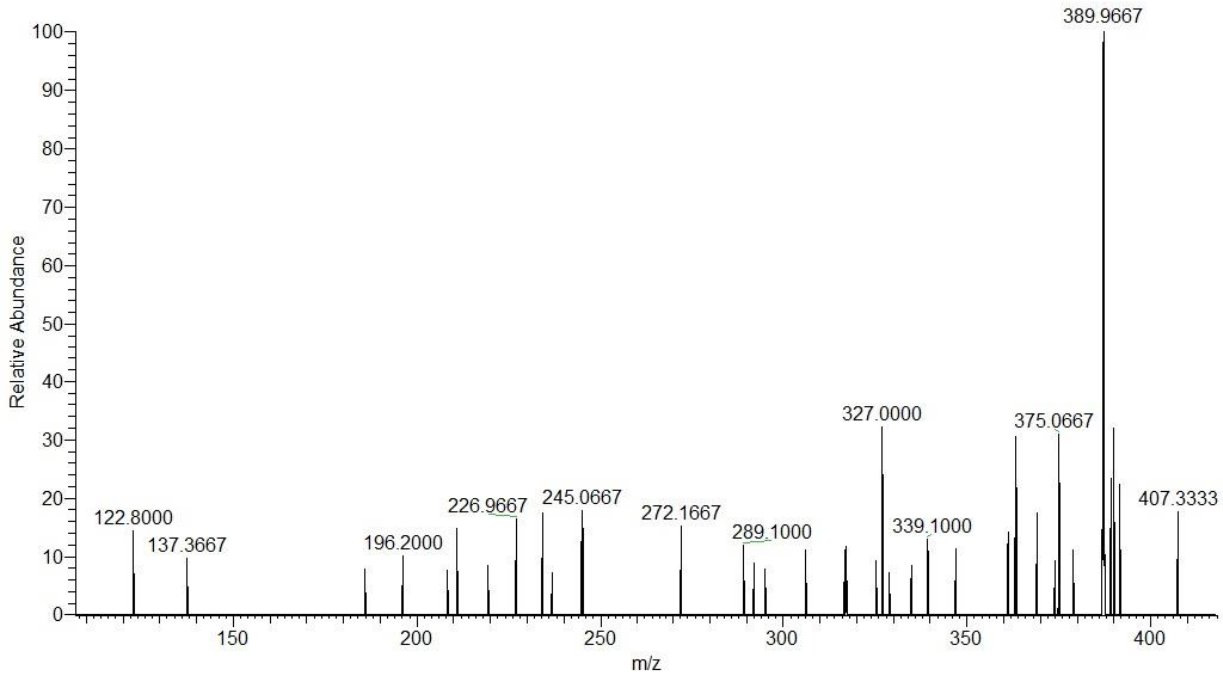
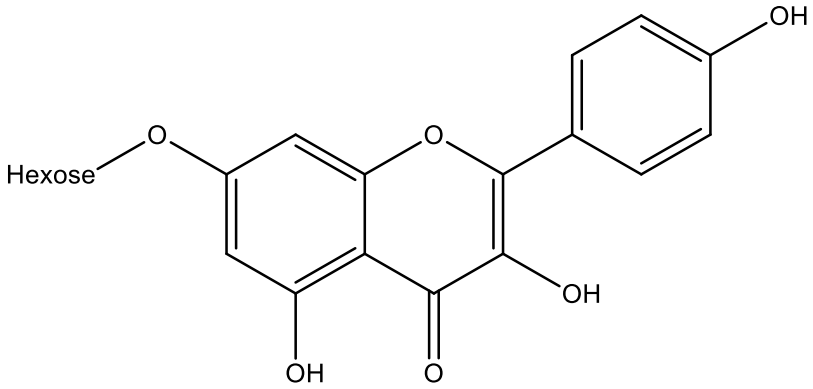


Figure 27: Peak 27: Kaempferol hexoside $[M-H]^-$: 447.



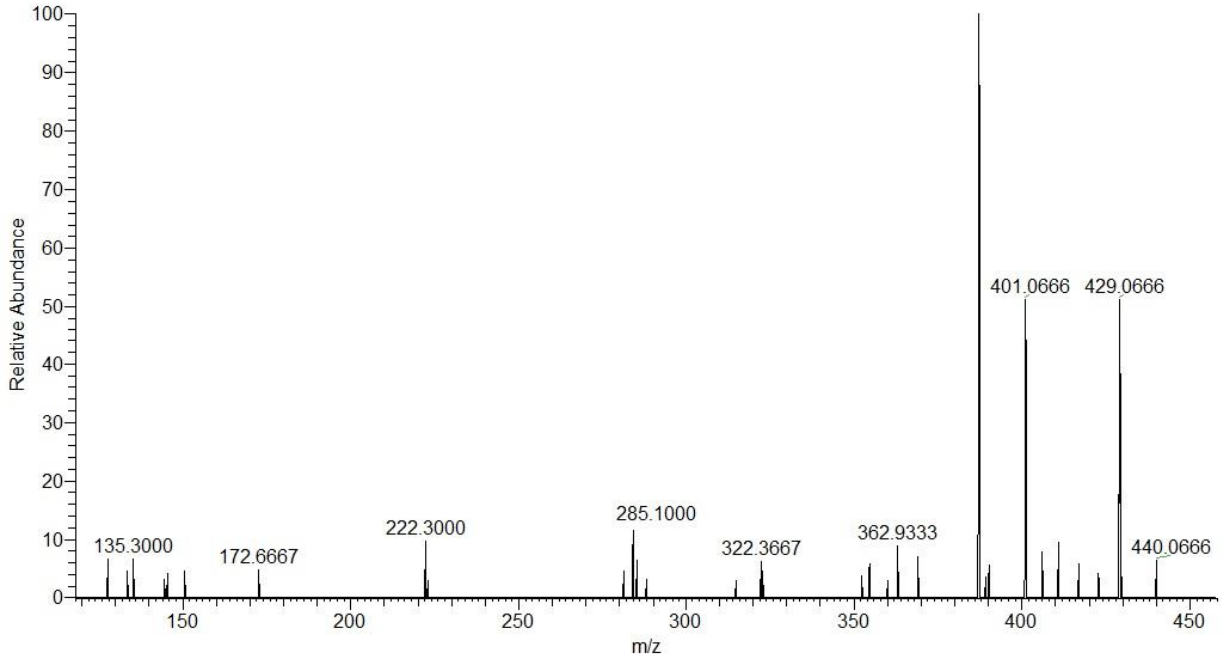
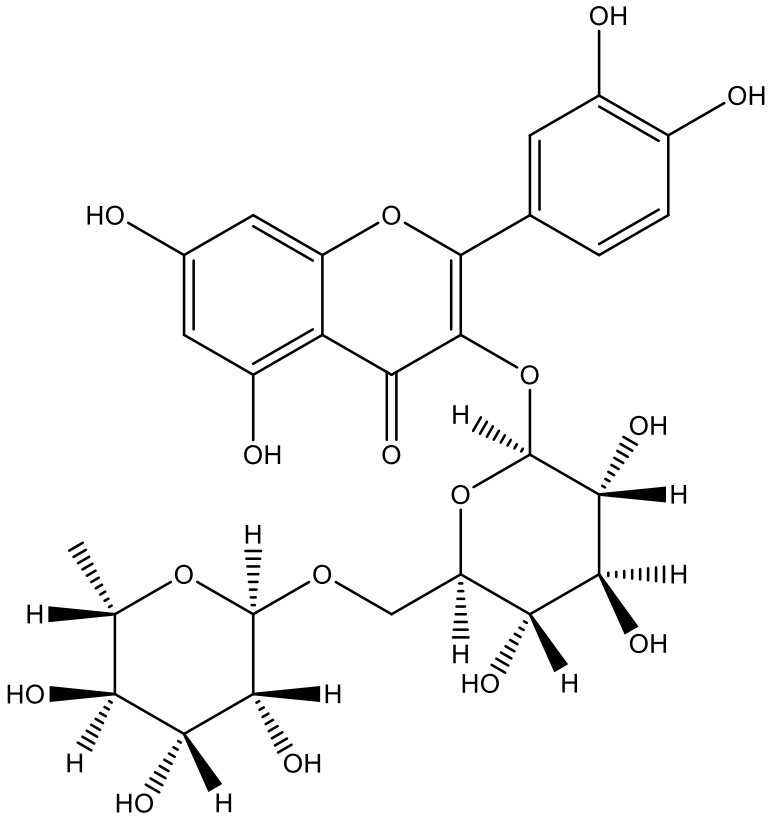


Figure 28: Peak 28: Rutin $[M-H]^-$: 609.



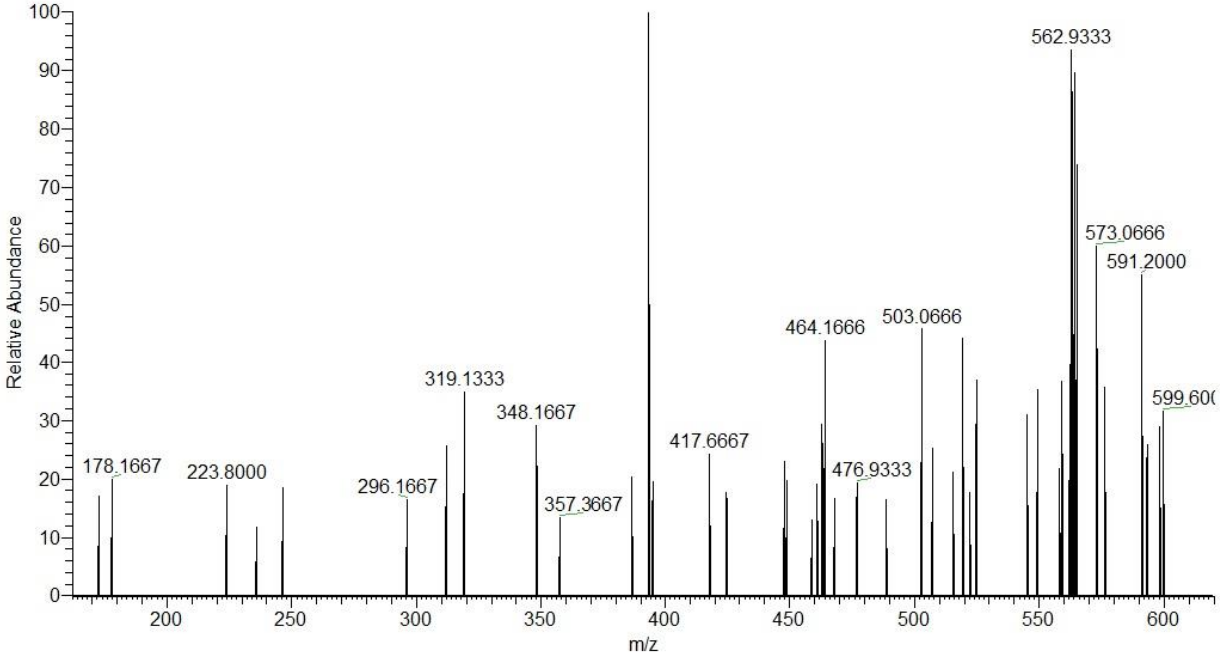


Figure 29: Peak 29: Trihydroxyfurost-en deoxyhexoside pentoside dihexoside $[M-H]^-$: 1063.

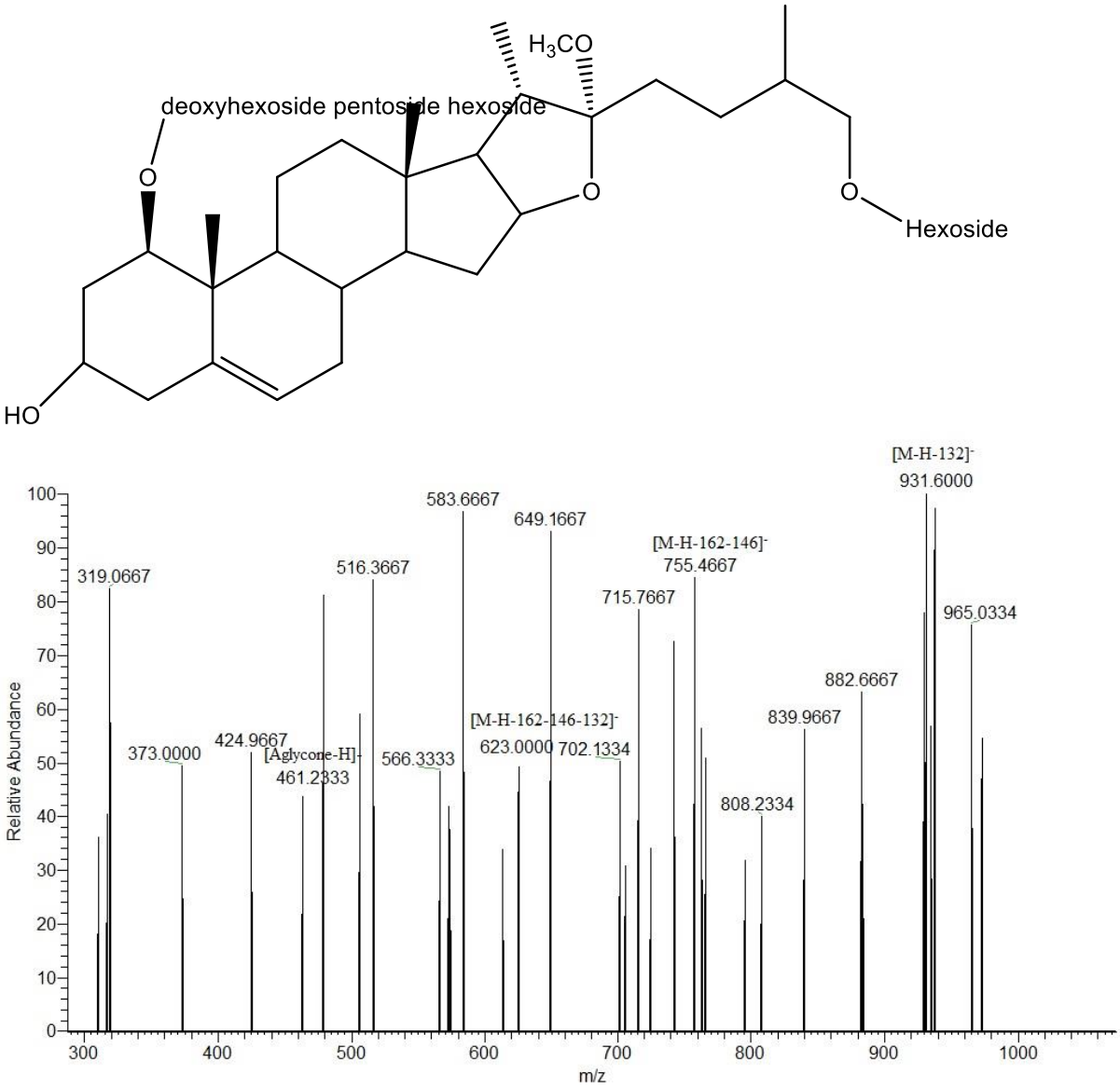
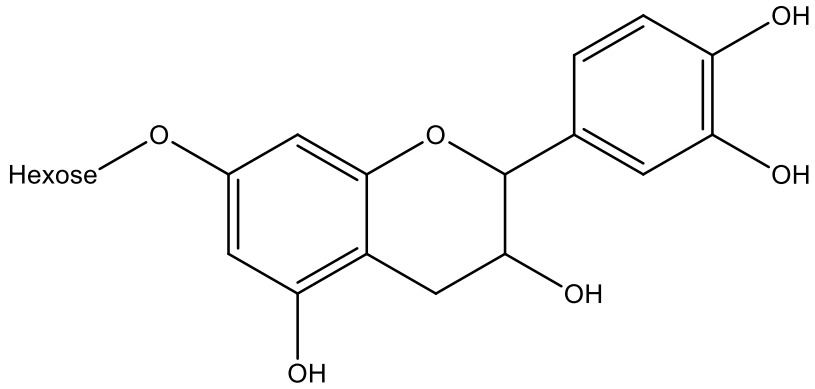


Figure 30: Peak 30: Catechin hexoside $[M-H]^-$: 451.



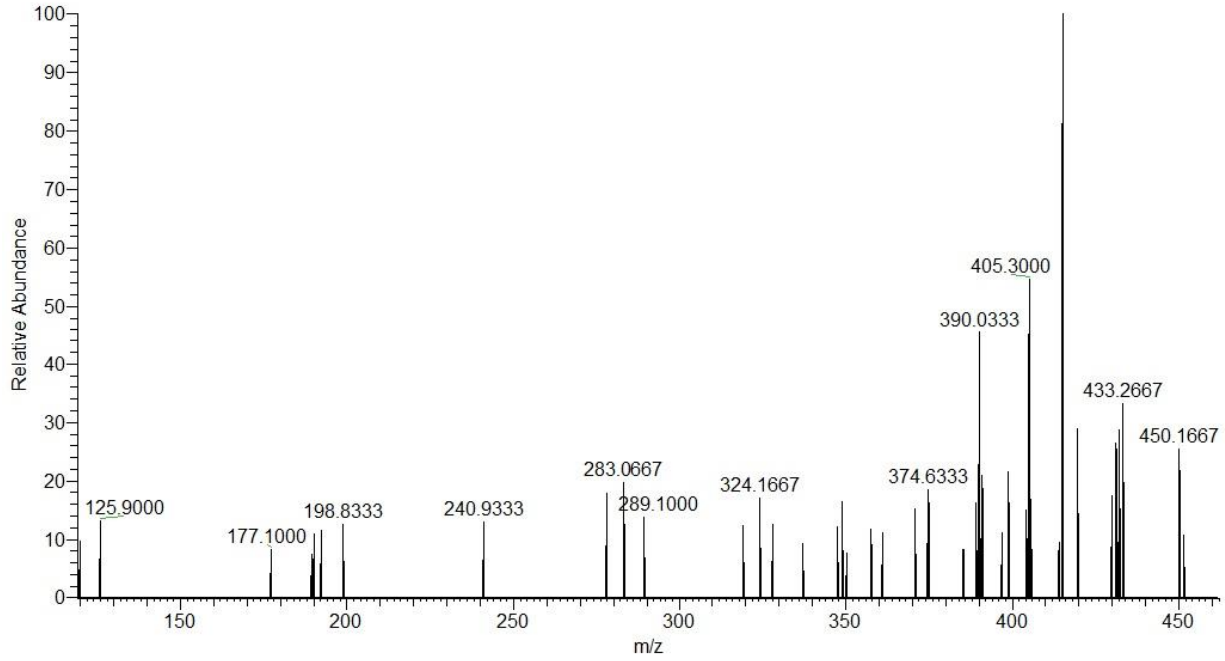
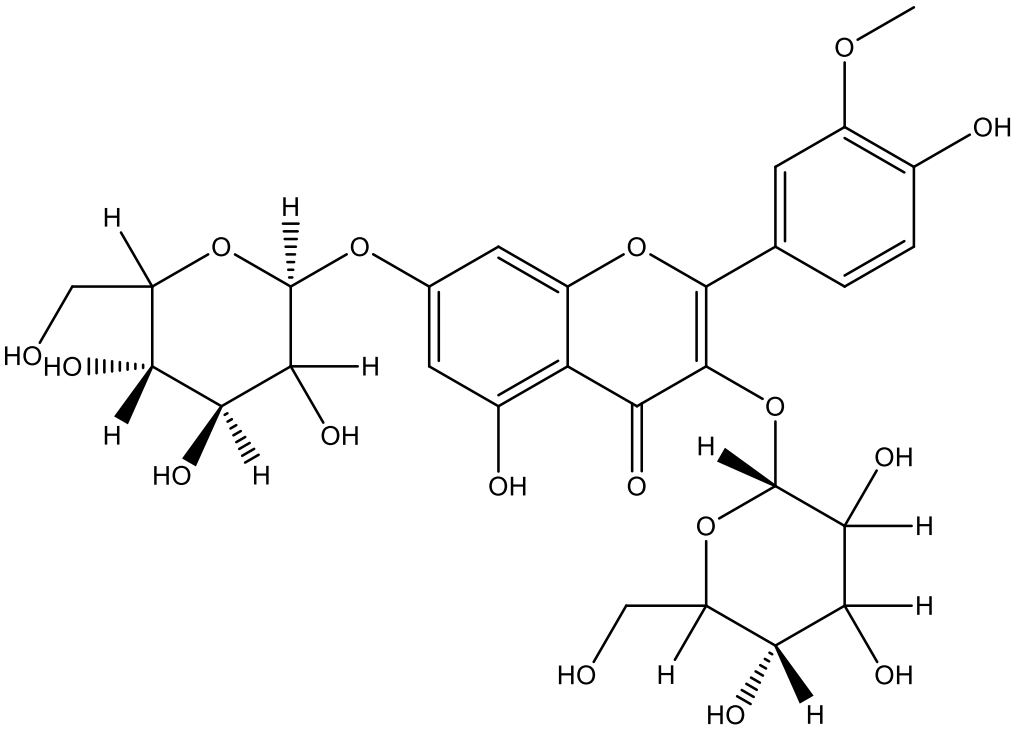


Figure 31: Peak 31: Isorhamnetin dihexoside $[M-H]^-$: 639.



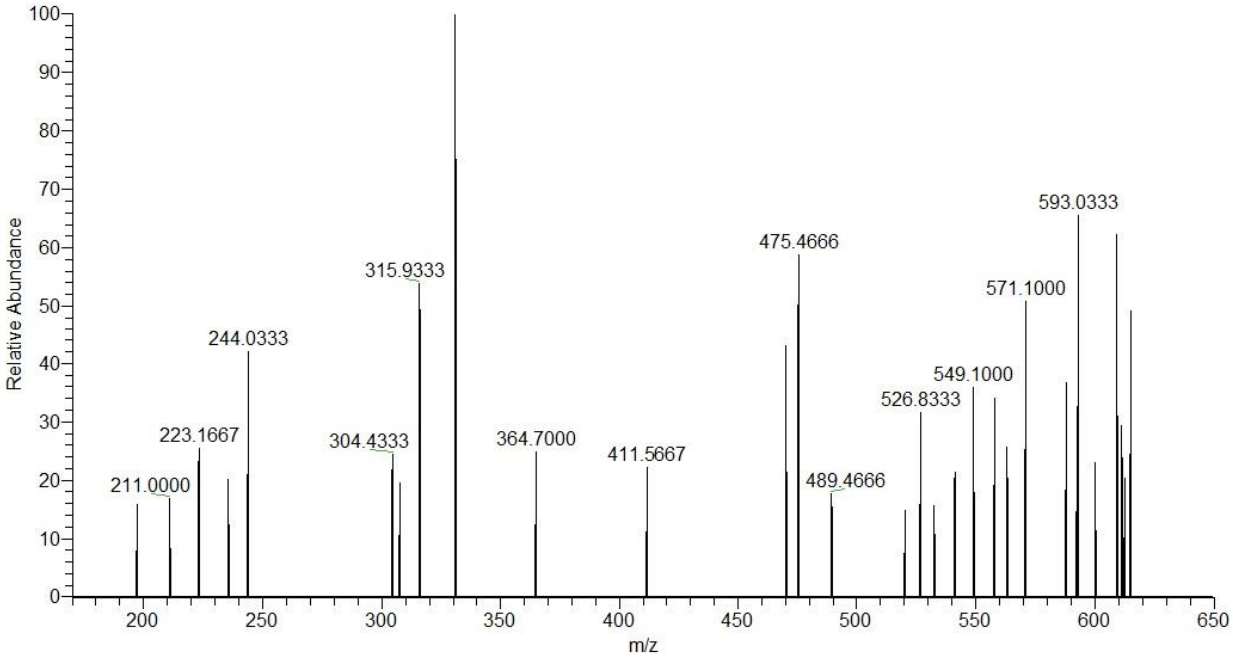
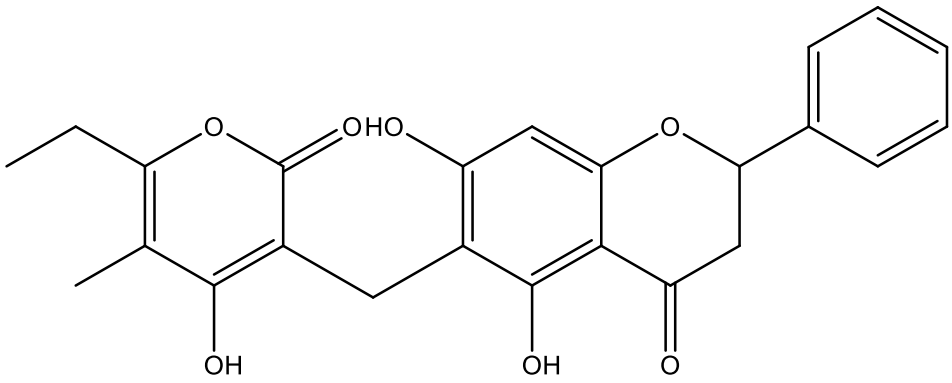


Figure 32: Peak 32: 6-((6-ethyl-4-hydroxy-5-methyl-2-oxo-2H-pyran-3-yl) methyl)-5,7-dihydroxy-2-phenylchroman-4-one [M-H]$^-$: 421.



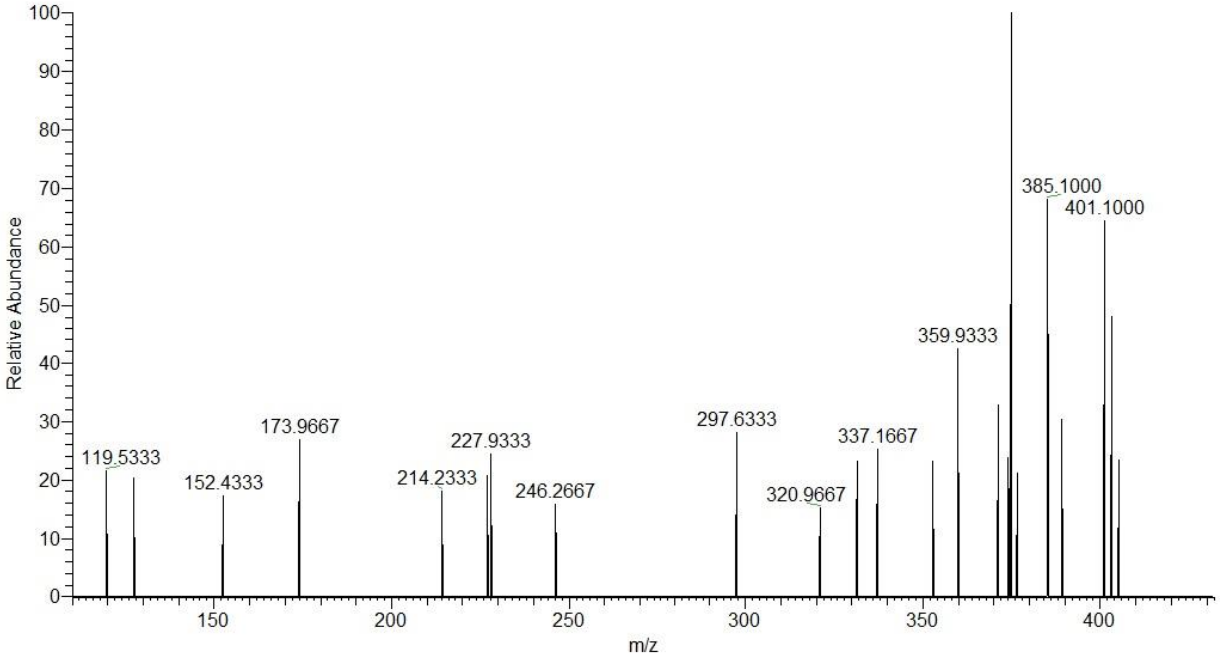
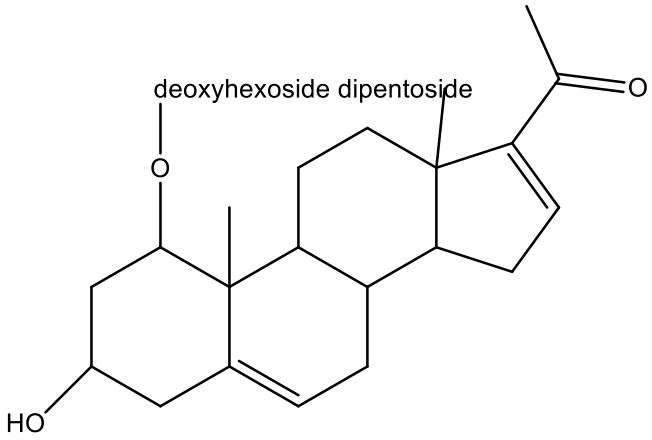


Figure 33: Peak 33: Dihydroxypregna-5,16-dien-20-one deoxyhexoside dipentoside $[M-H]^-$: 739.



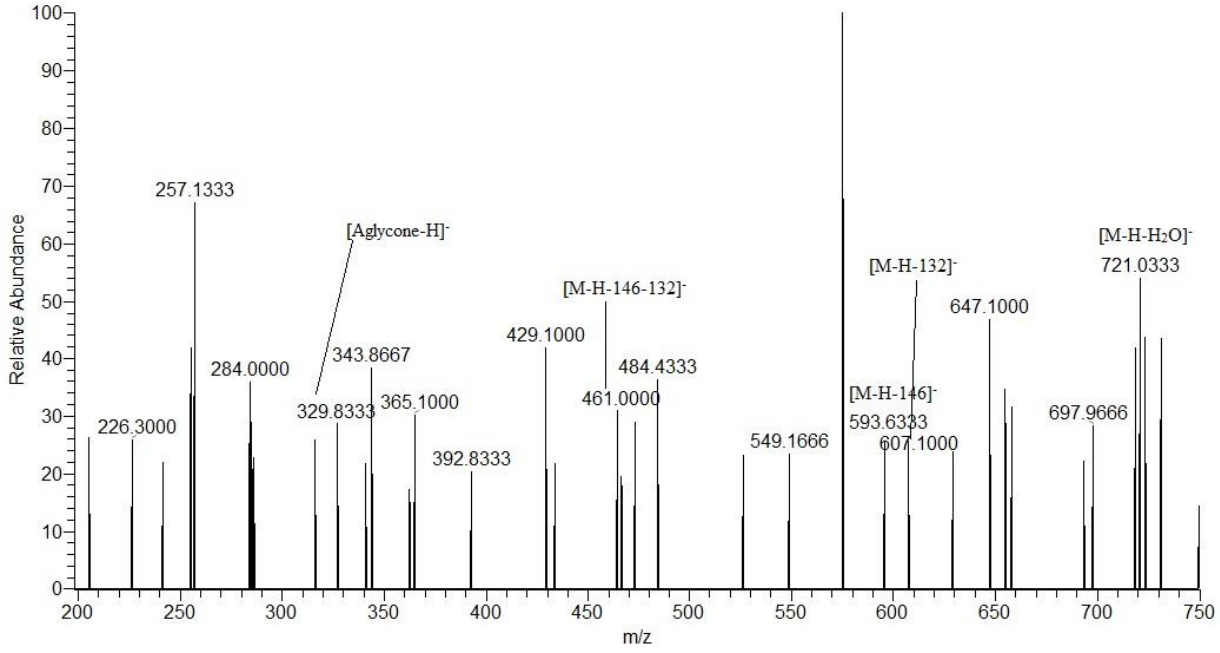
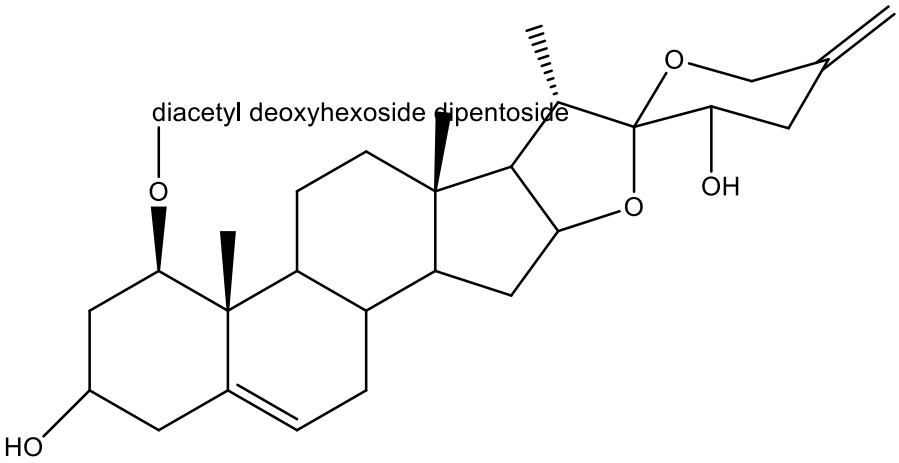


Figure 34: Peak 34: Trihydroxyspirosta-diene-diacetyl deoxyhexoside dipentoside $[M-H]^-$: 937.



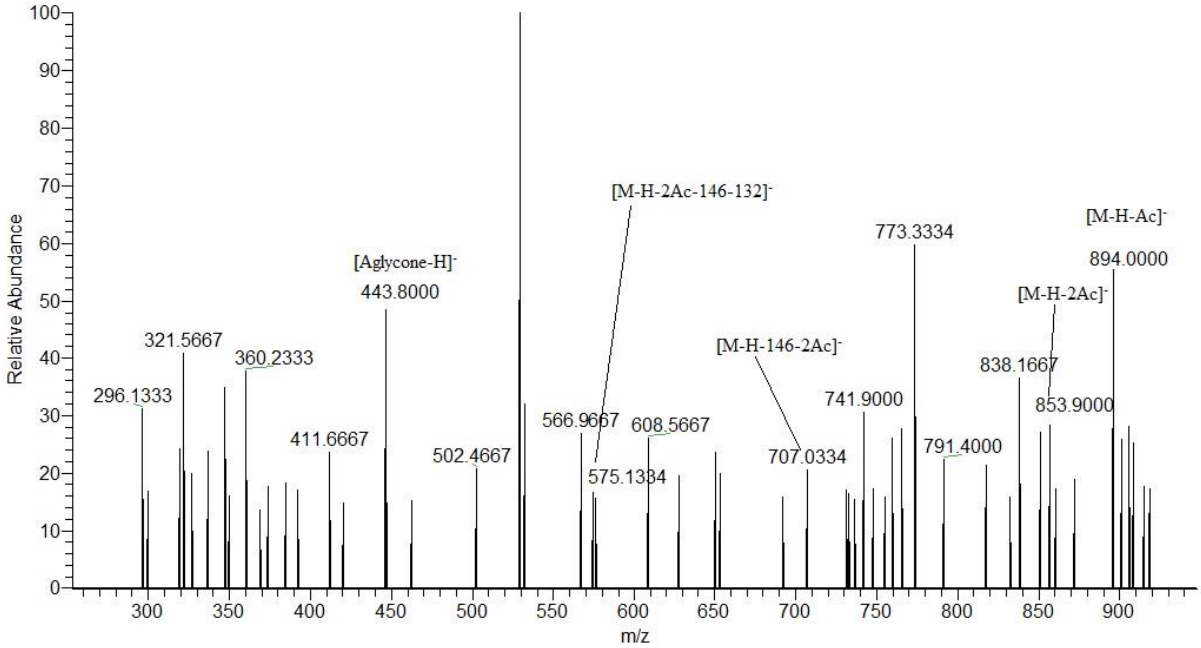
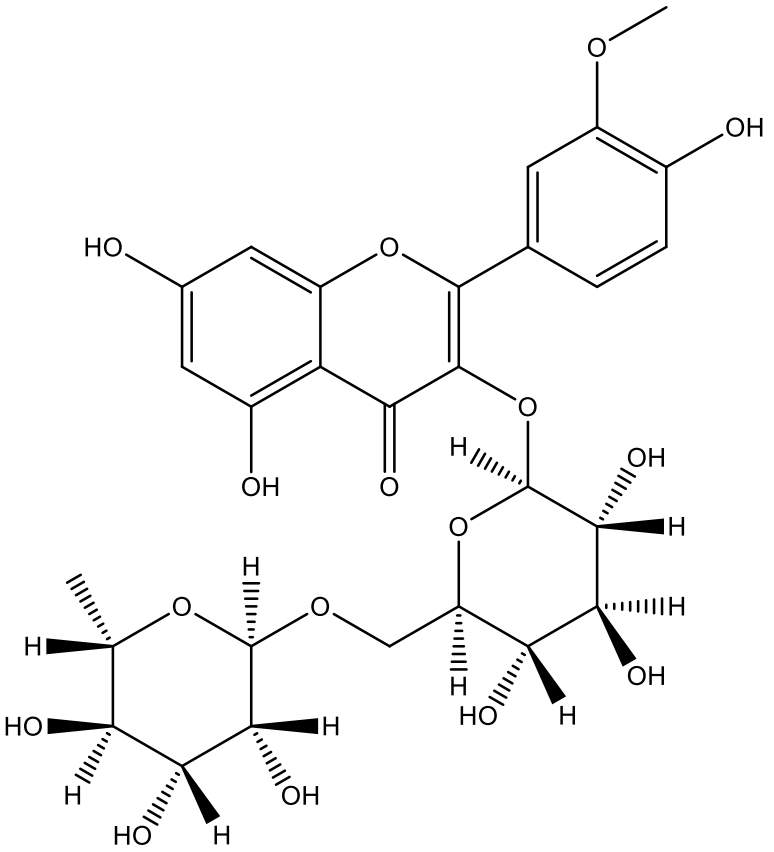


Figure 35: Peak 35: Isorhamnetin rutinoside [M-H]$^-$: 623.



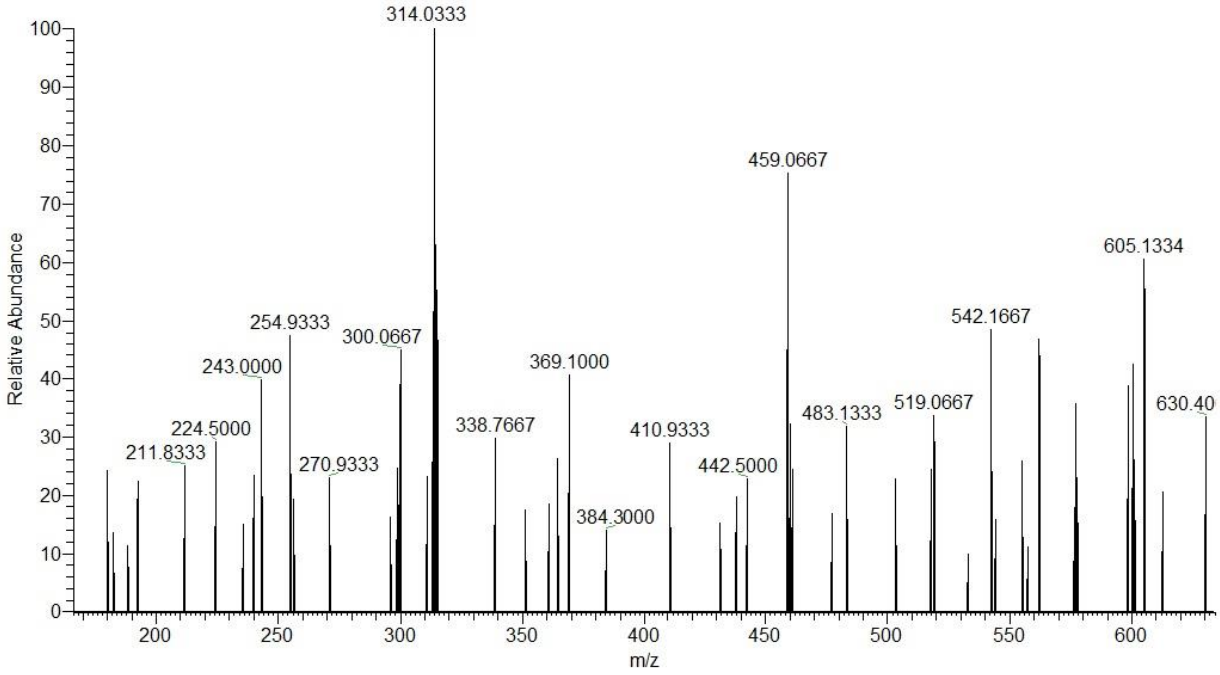
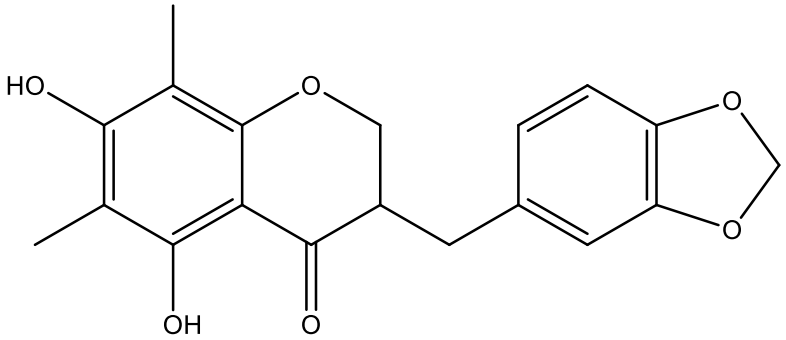


Figure 36: Peak 36: Methylophiopogonanone A $[M-H]^-$: 341.



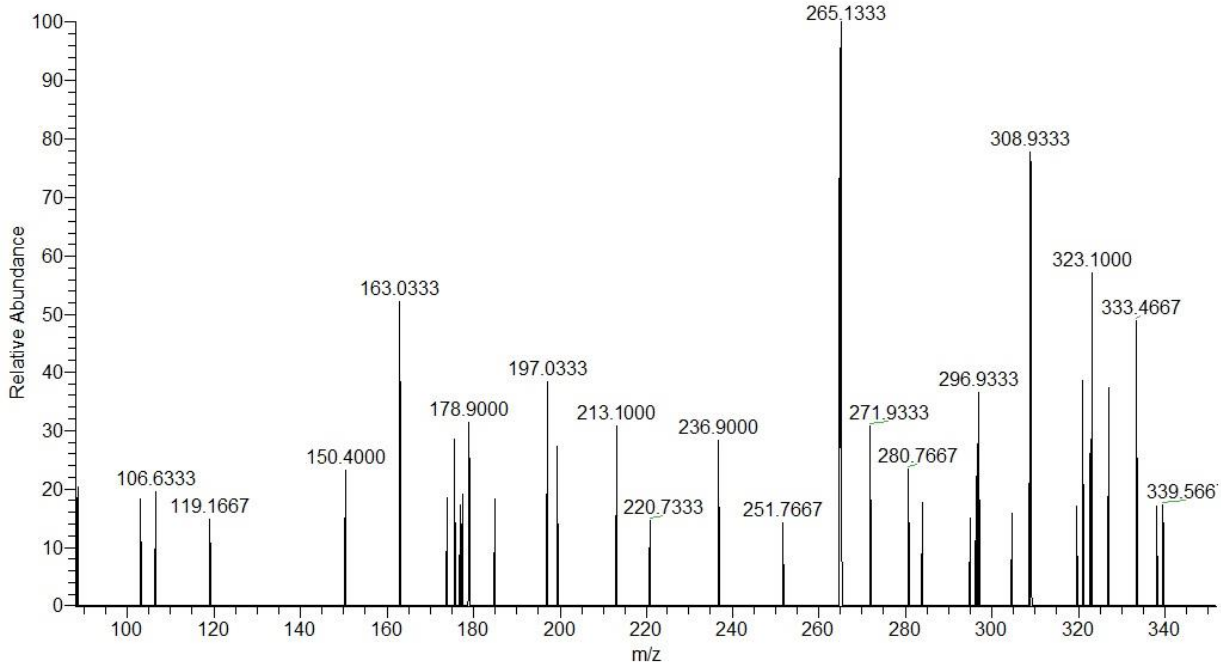
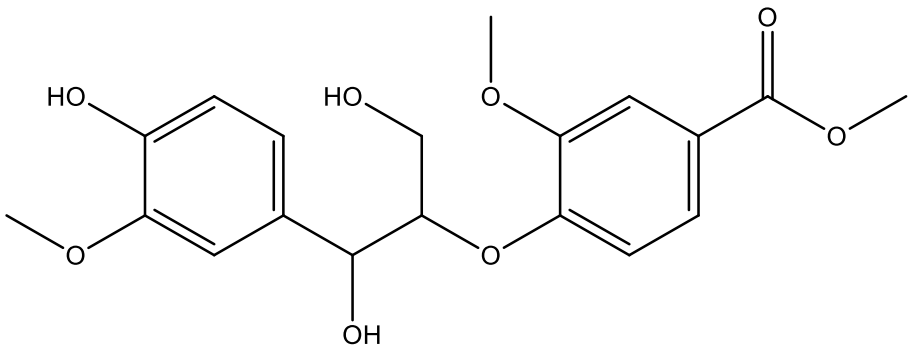


Figure 37: Peak 37: methyl 4-[1,3-dihydroxy-1-(4-hydroxy-3-methoxyphenyl) propan-2-yl] oxy-3-methoxybenzoate $[M-H]^-$: 377.



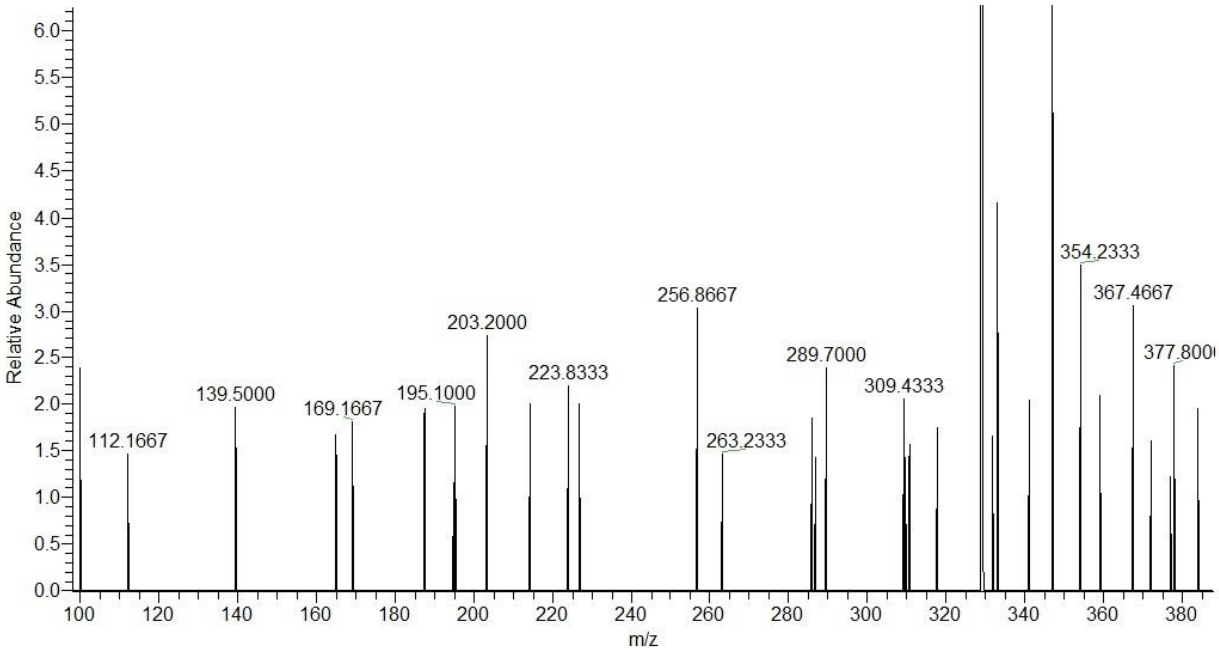
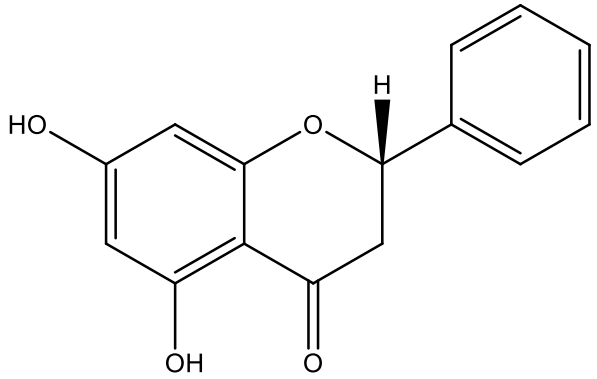


Figure 38: Peak 38: Pinocembrine $[M-H]^-$: 255.



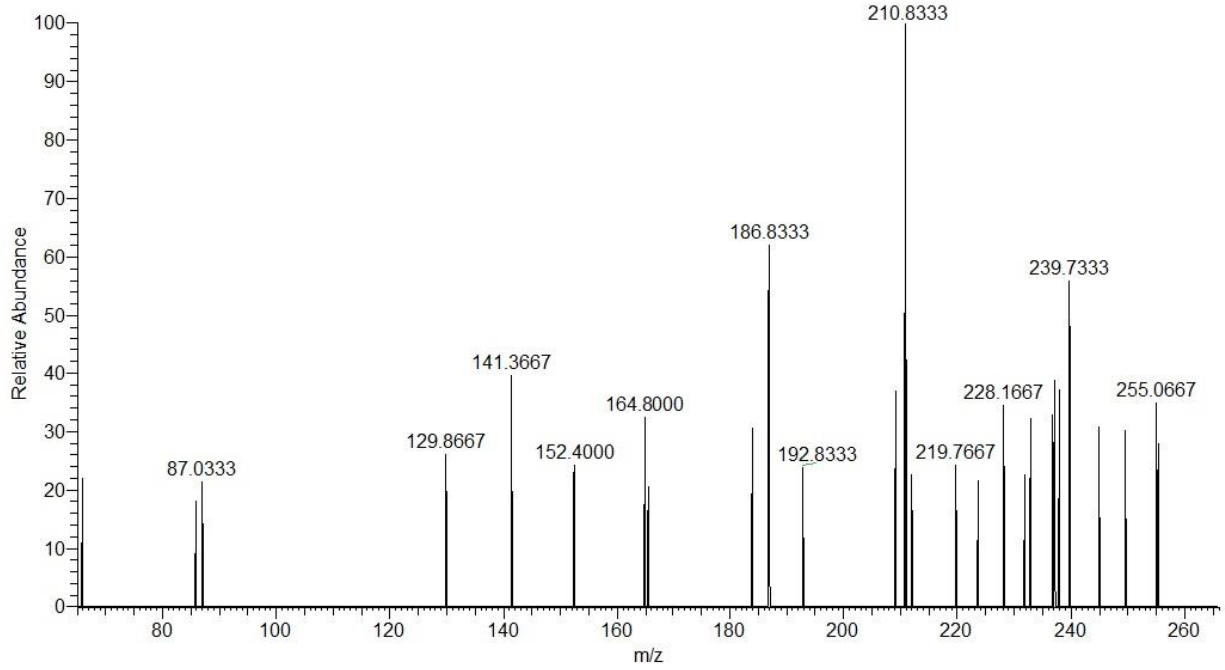
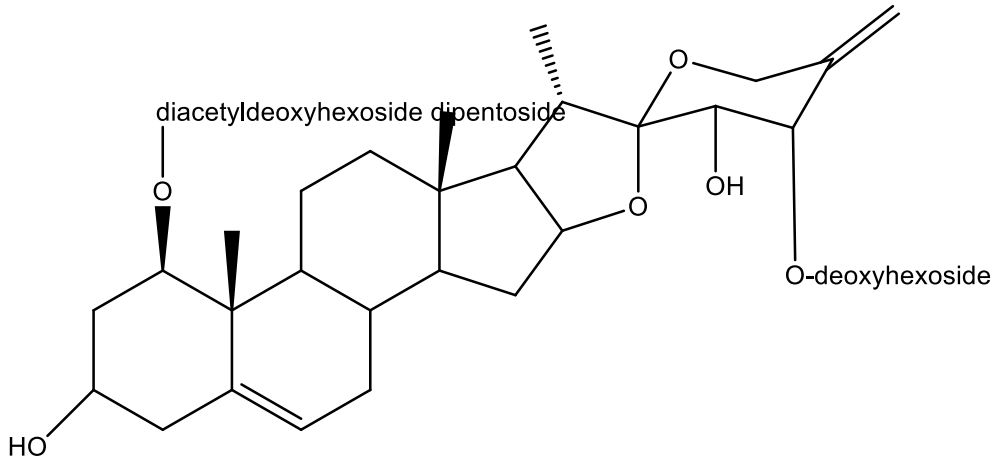


Figure 39: Peak 39: Tetrahydroxy spirosta-diene- diacetyl deoxyhexoside dipentoside deoxyhexose $[M-H]^-$: 1099.



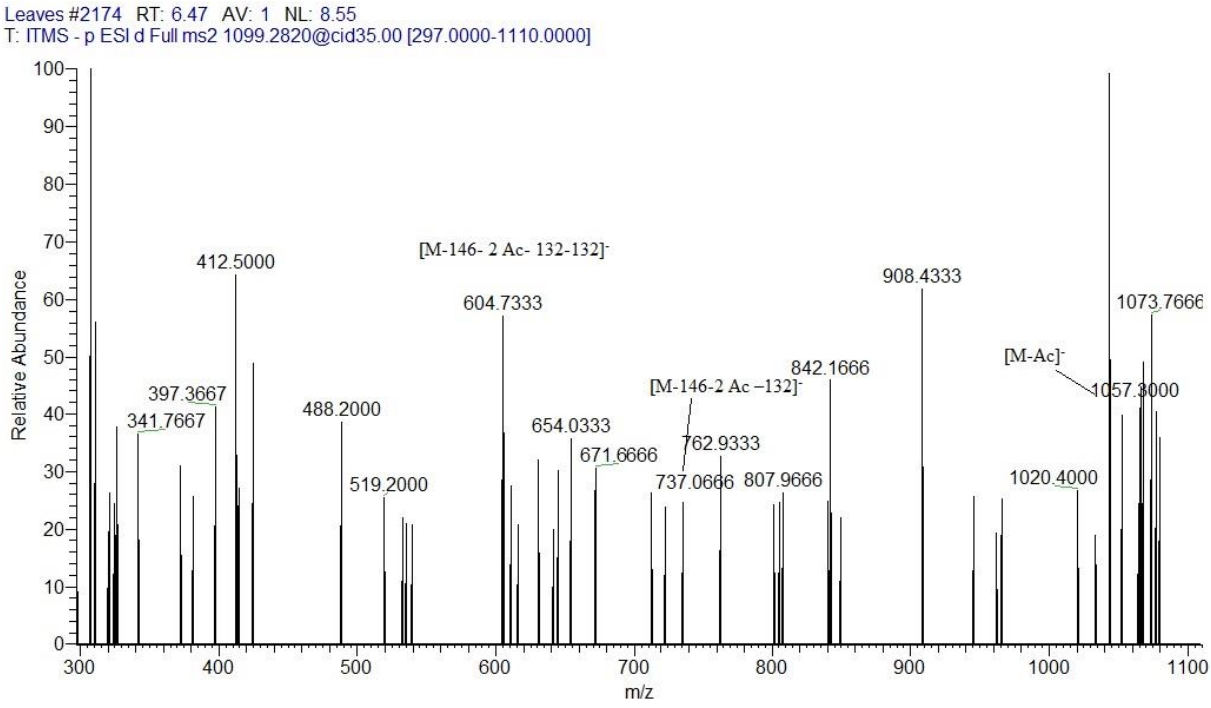
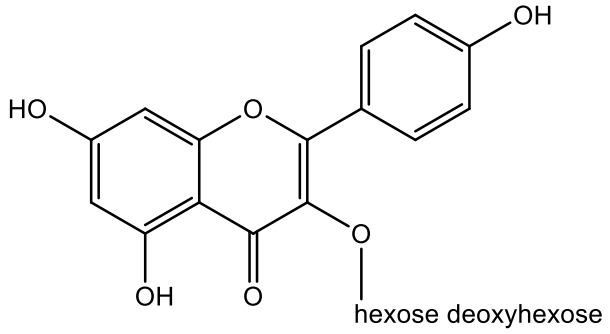


Figure 40: Peak 40: Kaempferol hexoside deoxyhexoside [M-H]$^-$: 593.



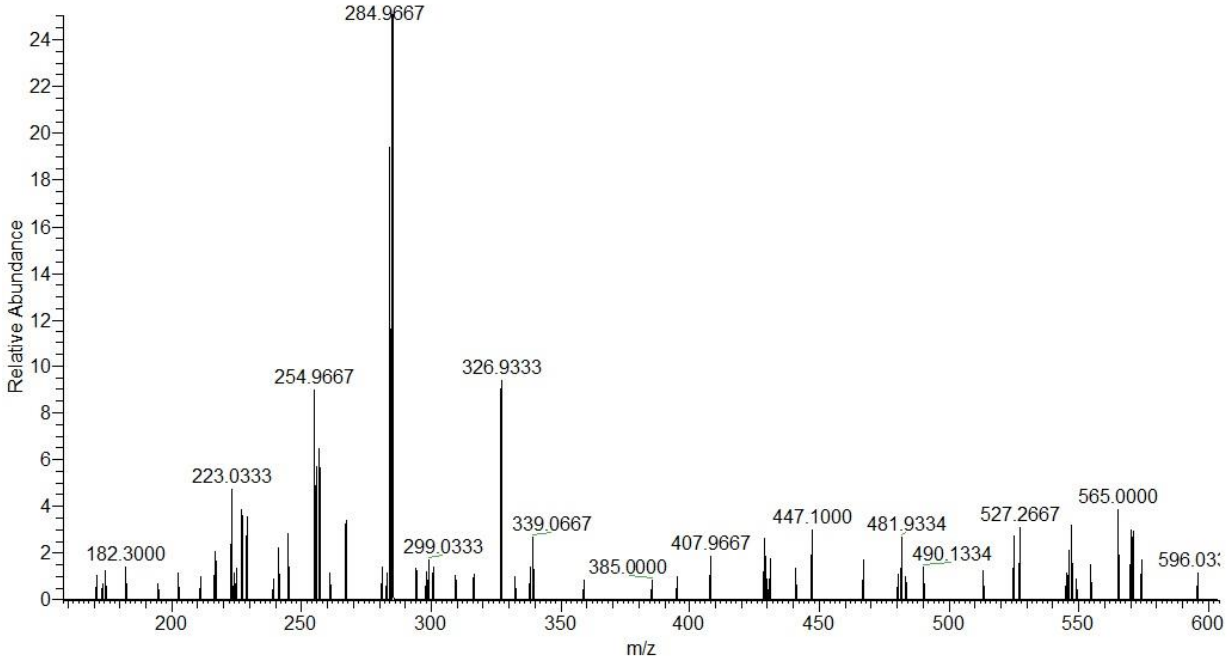
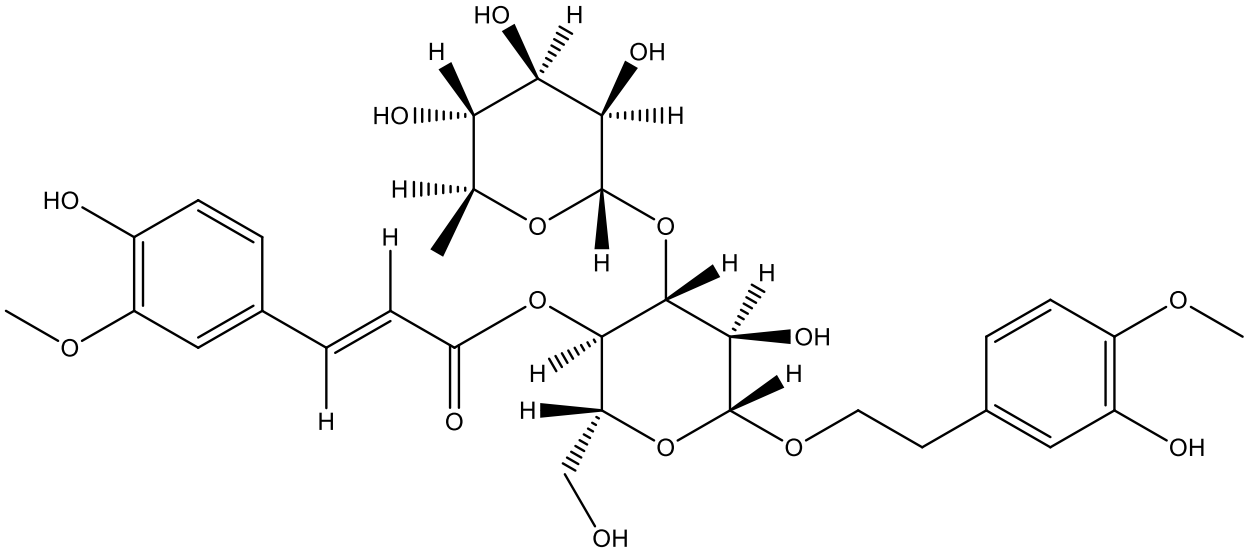


Figure 41: Peak 41: Martynoside $[M-H]^-$: 651.



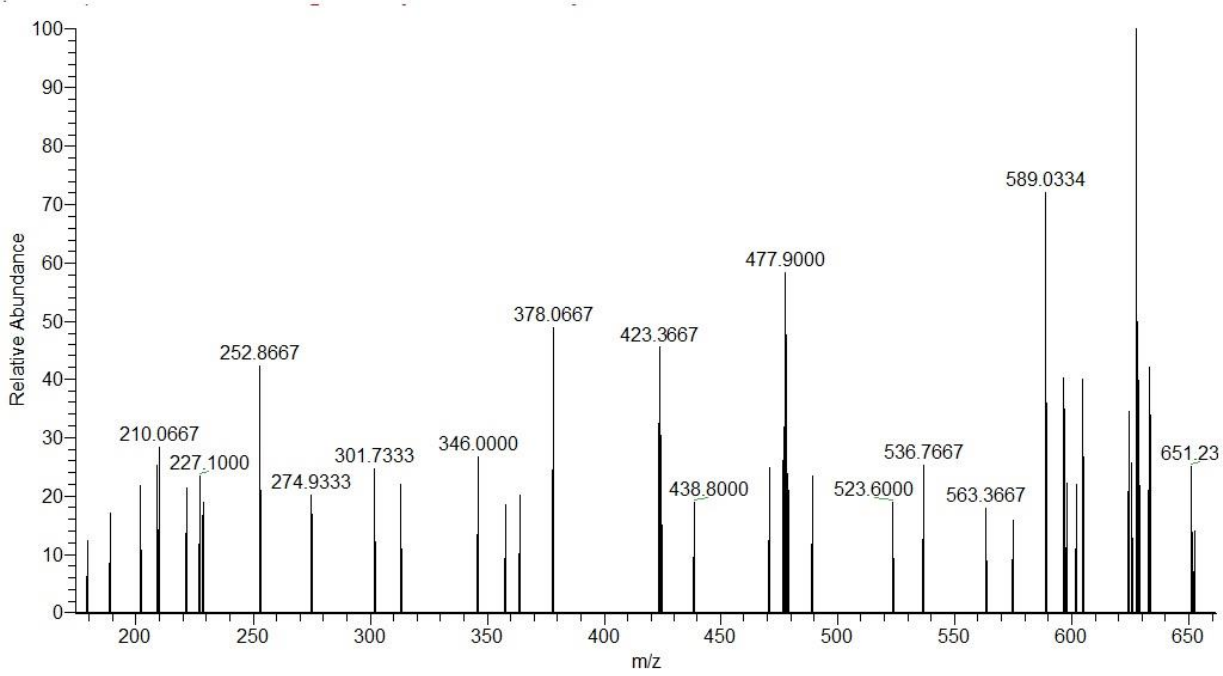
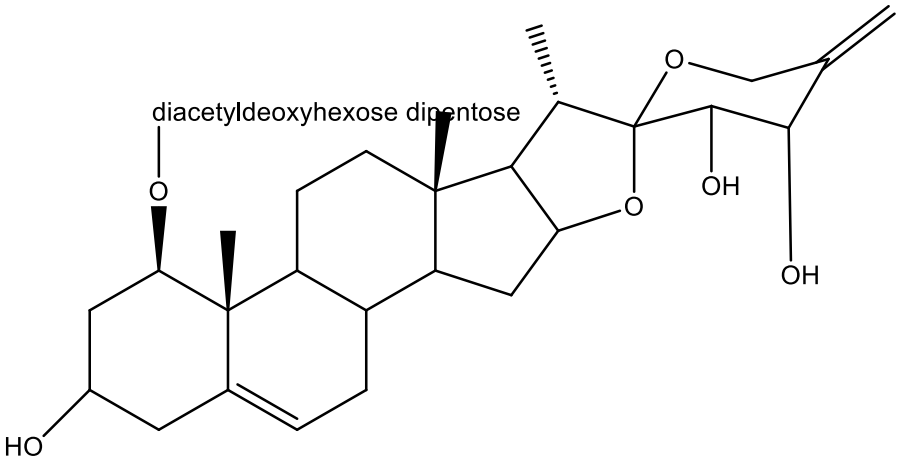


Figure 42: Peak 42: Tetrahydroxy spirosta-diene-diacetyldeoxyhexoside dipentoside $[M-H]^-$: 953.



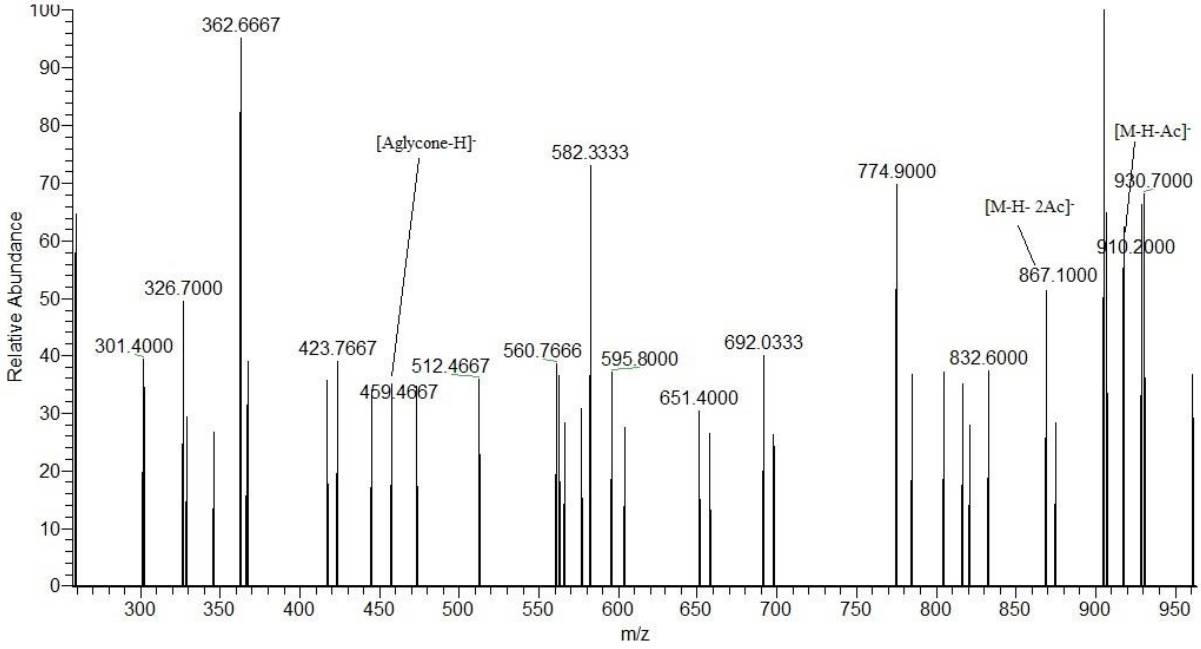
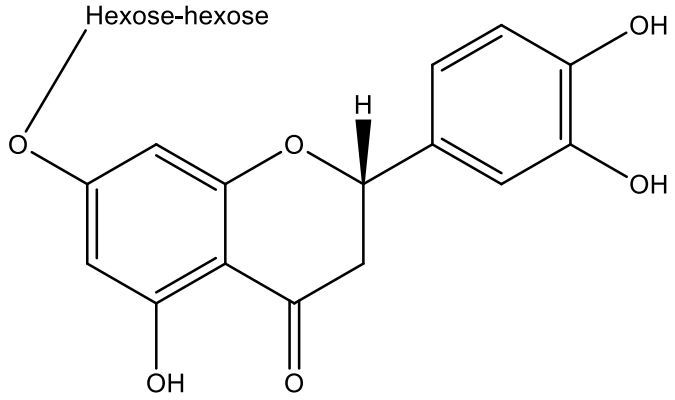


Figure 43: Peak 43: Eriodictyol dihexoside [M-H]$^-$: 611.



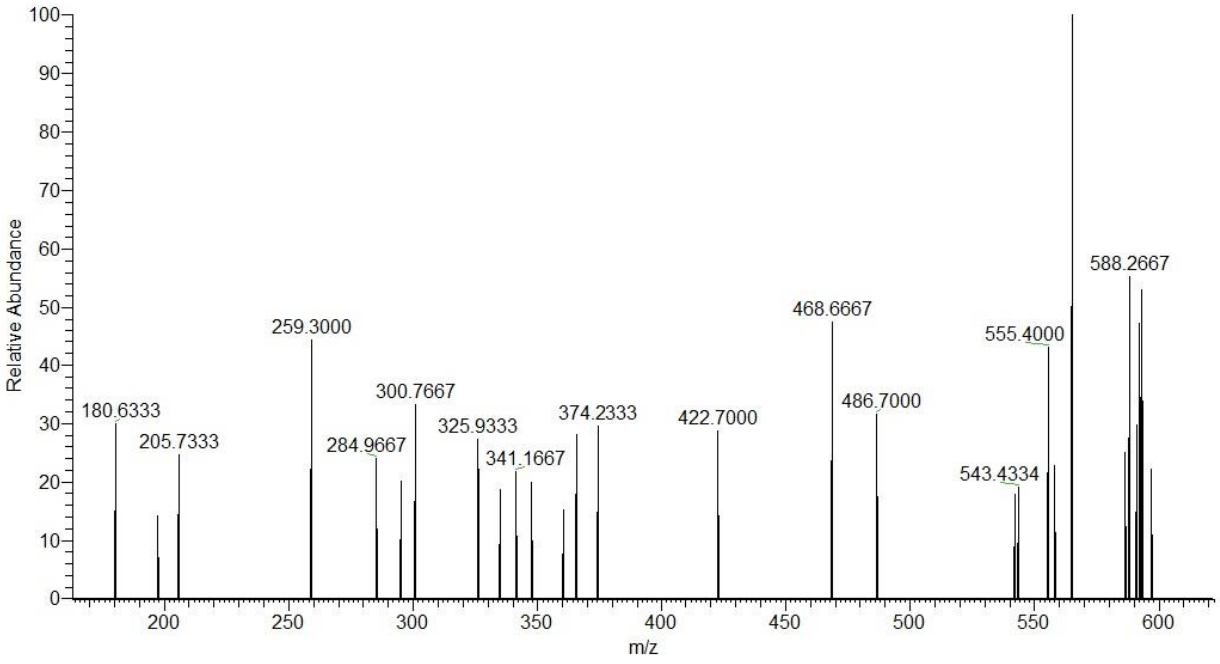


Figure 44: Peak 44: Trihydroxy spirosta-diene- deoxyhexoside dipentoside $[M-H]^-$: 853.

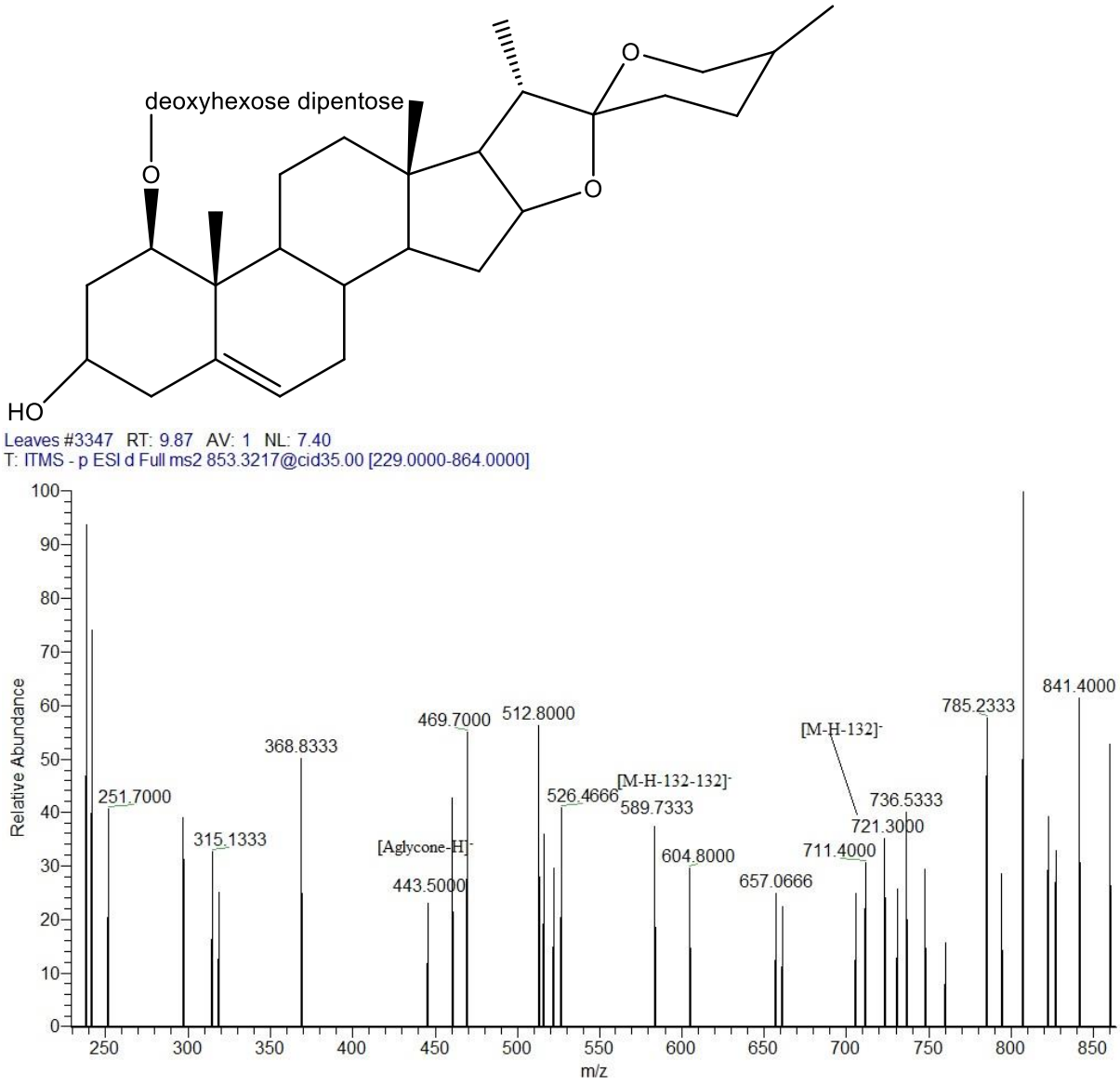
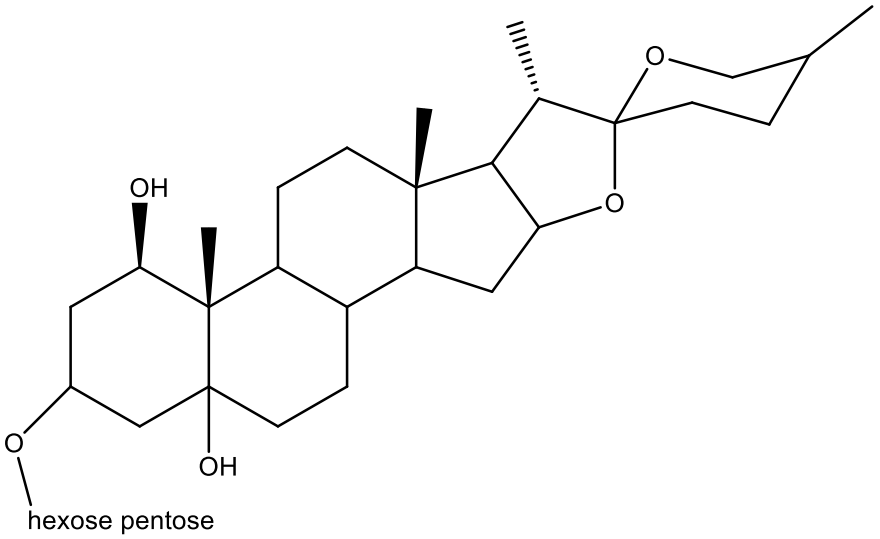


Figure 45: Peak 45: Trihydroxyspirostane hexoside pentoside $[M-H]^-$: 741.



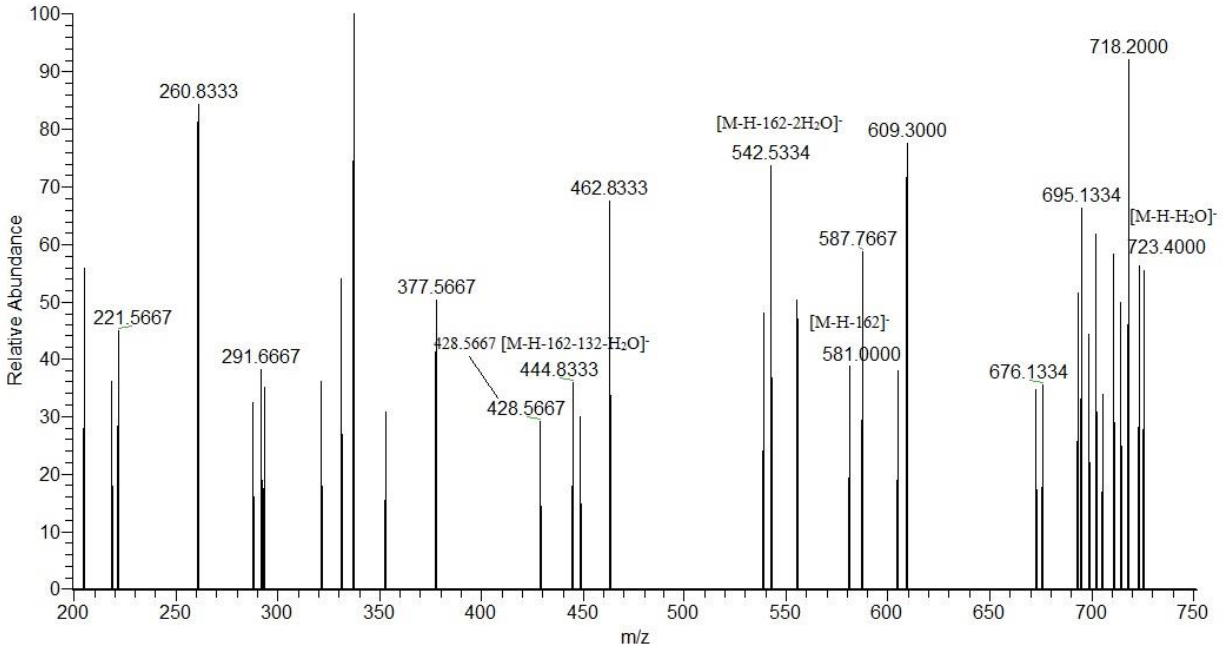


Figure 46: Peak 46: Monogalloyl-hexoside $[M-H]^-$: 331.

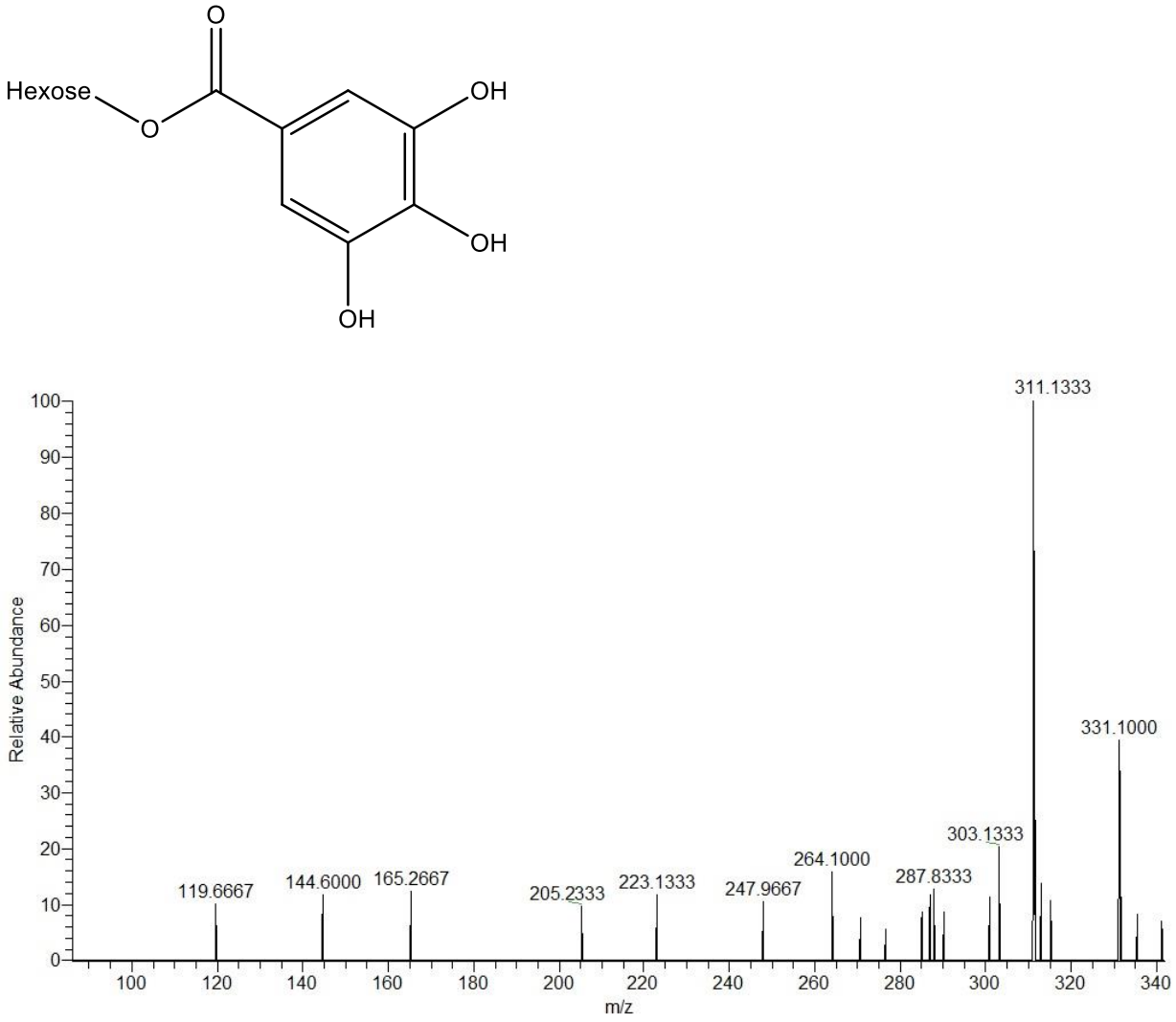
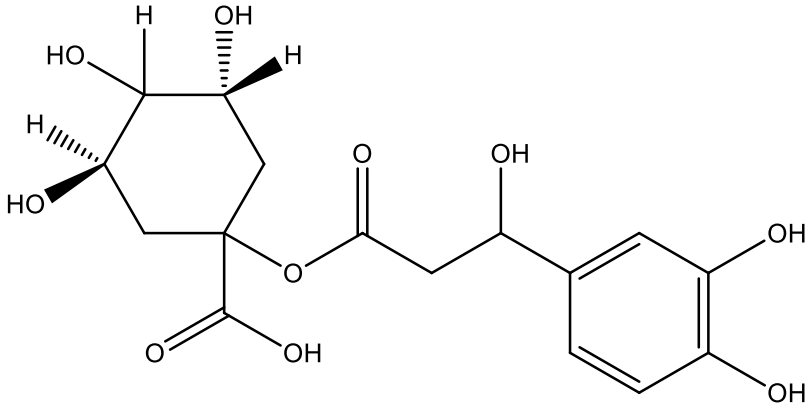


Figure 47: Peak 47: Hydroxydihydrocaffeoylquinic acid $[M-H]^-$: 371.



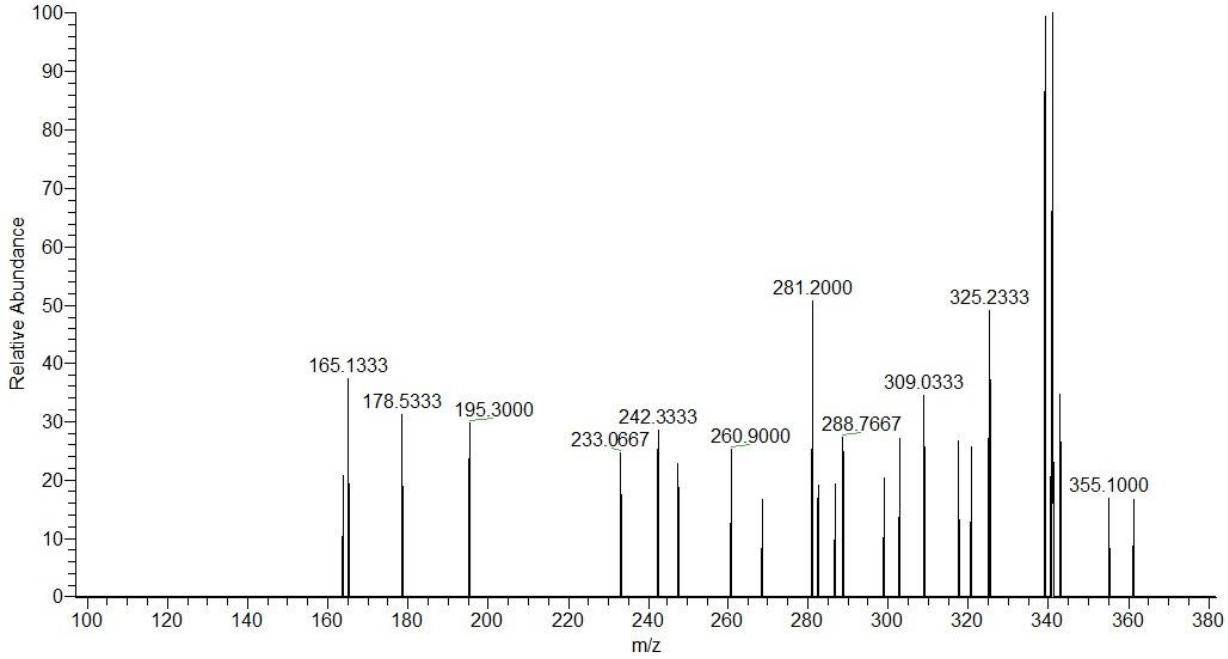


Figure 48: Peak 48: Isokaemferide (5,7,4`-trihydroxy-3-methoxyflavone) $[M-H]^-$: 299.

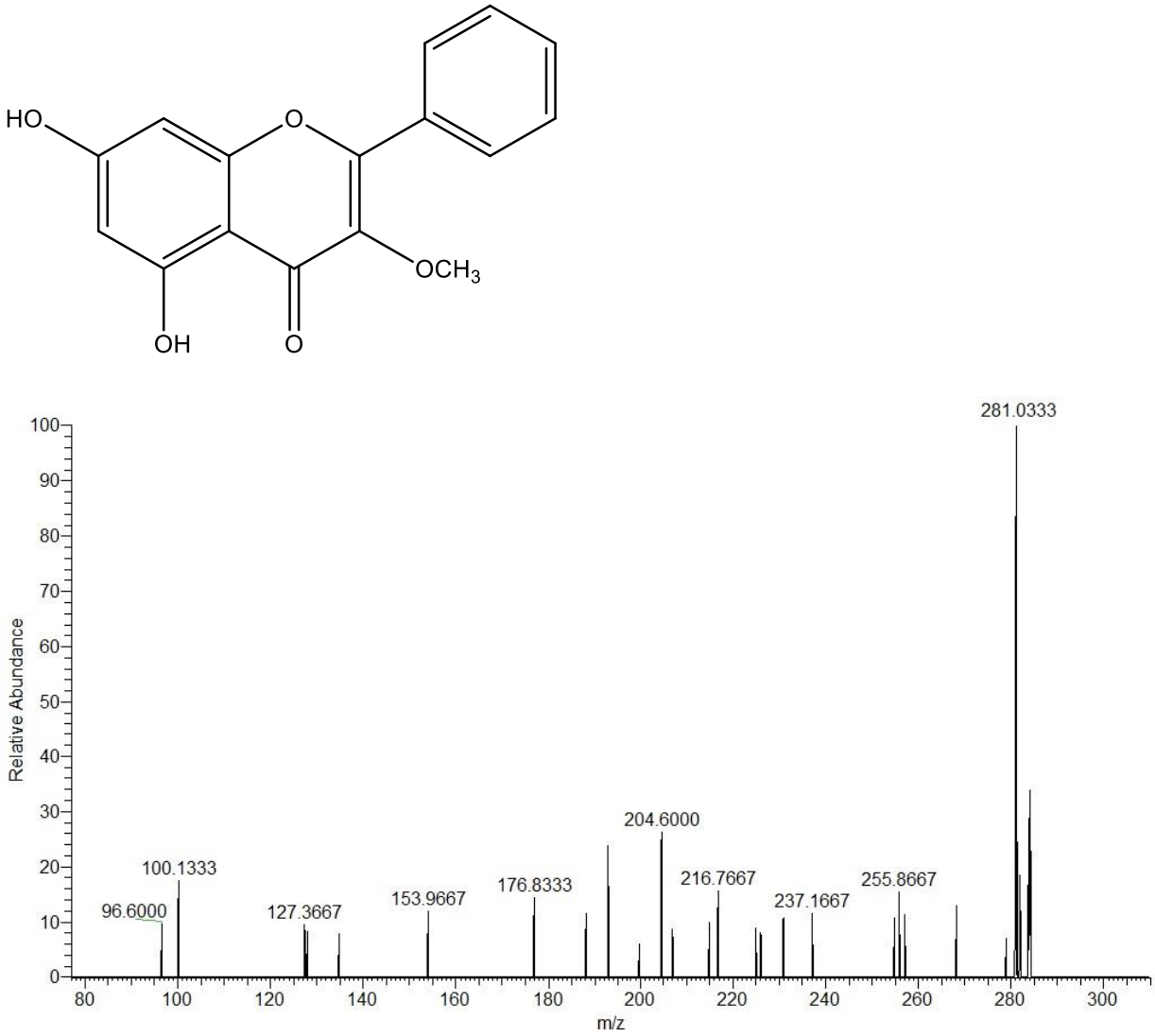
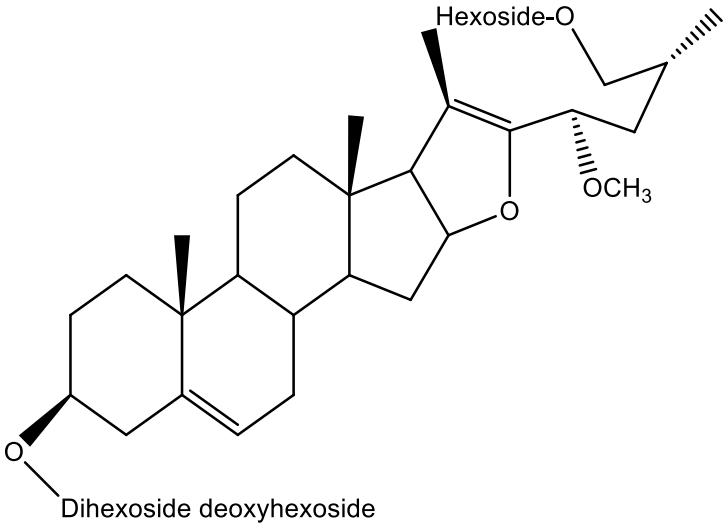


Figure 49: Peak 49: Dihydroxy methoxyfurost--diene deoxyhexoside trihexoside [M-H]$^-$: 1075.



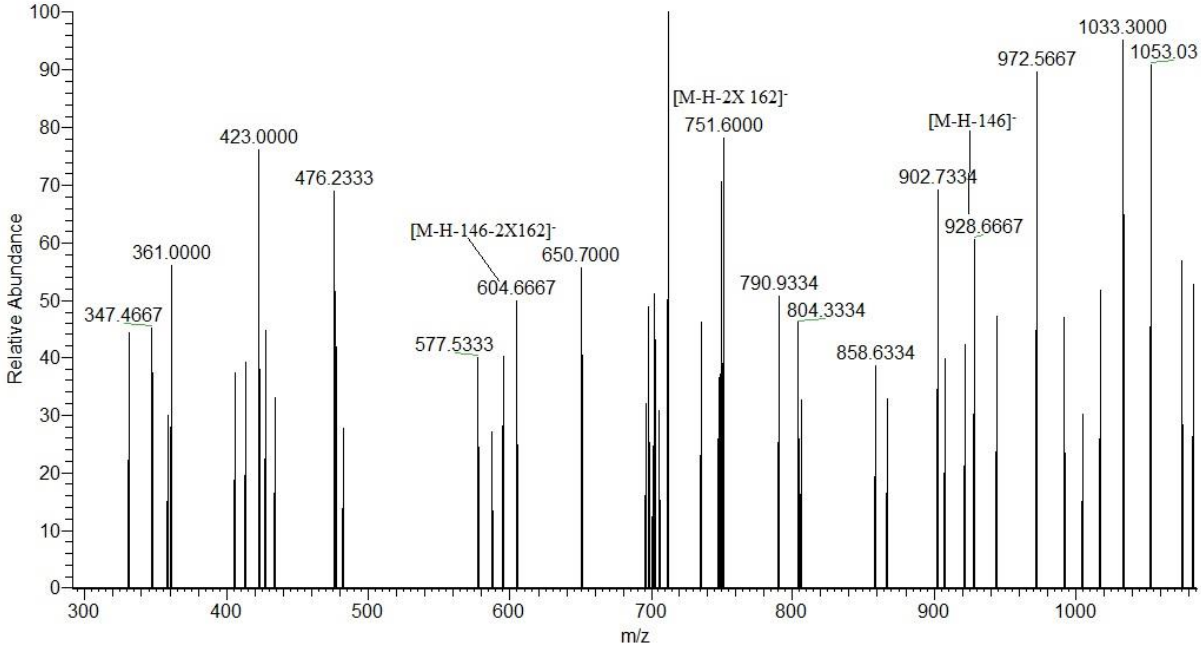
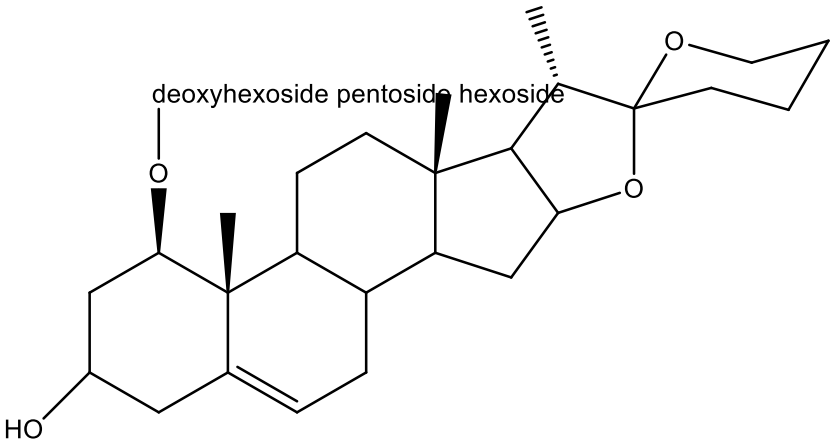


Figure 50: Peak 50: Hydroxyspirost-en deoxyhexoside pentoside hexoside $[M-H]^-$: 869.



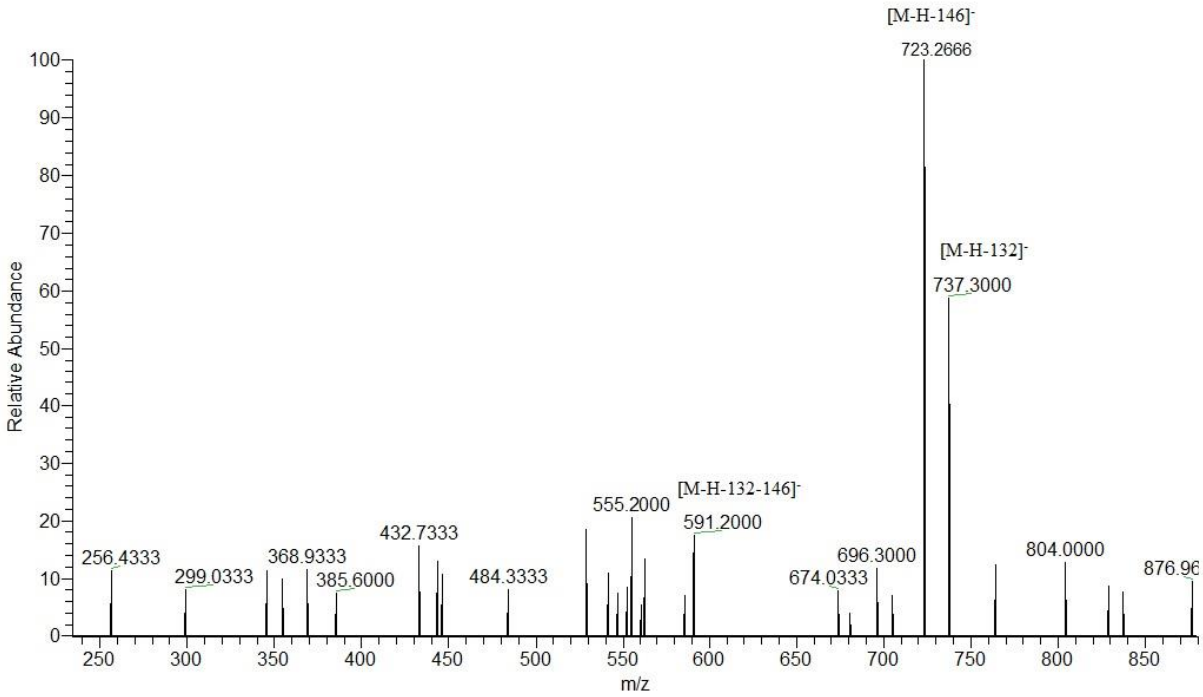
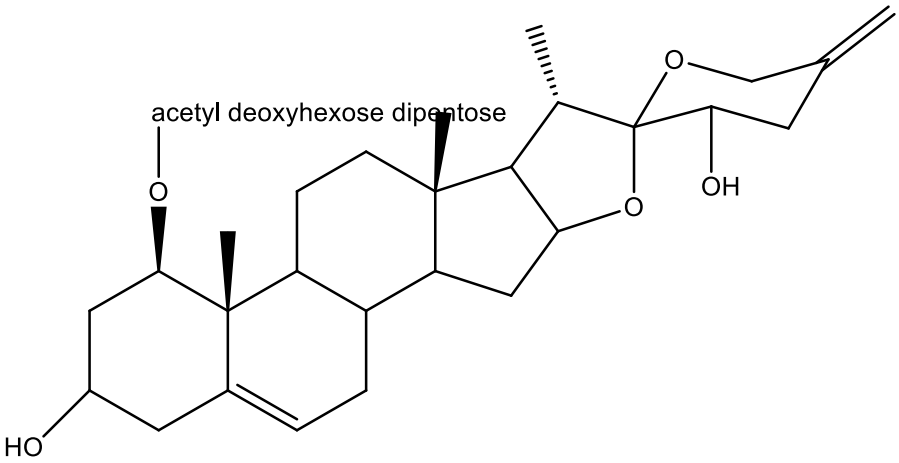


Figure 51: Peak 51: Trihydroxy spirosta-diene acetyl deoxyhexoside dipentoside $[M-H]^-$: 895.



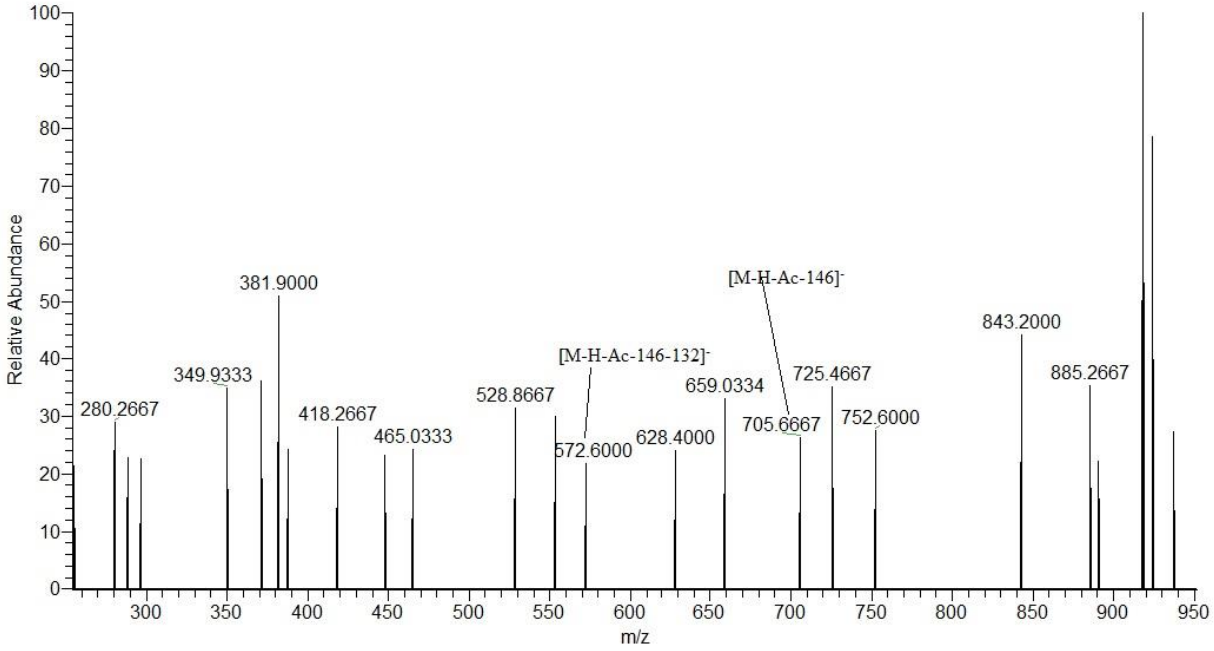


Figure 52: Peak 52: Dihydroxypregna-5,16-dien-20-one deoxyhexoside pentoside acetyl hexoside $[M-H]^-$: 811.

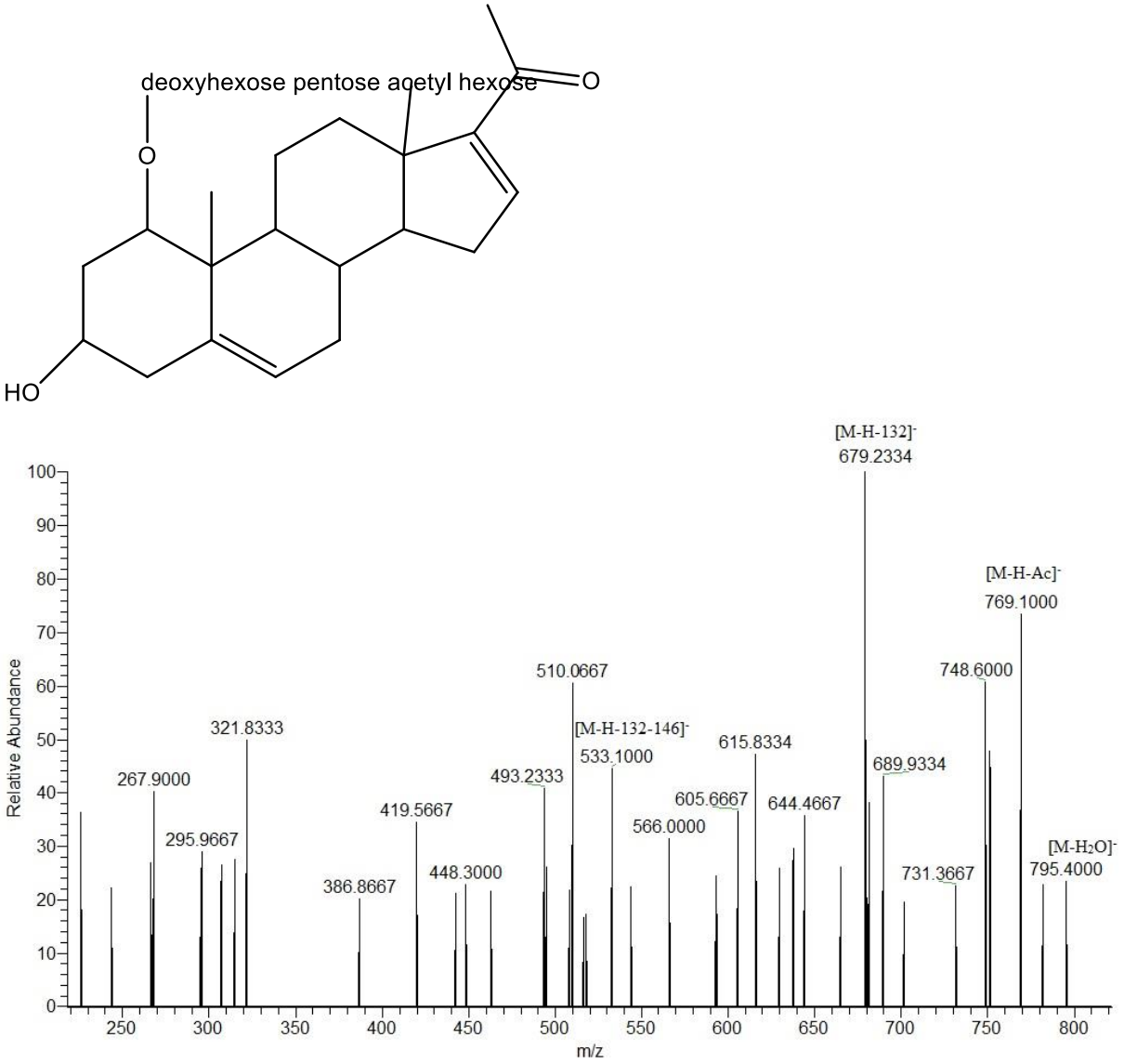
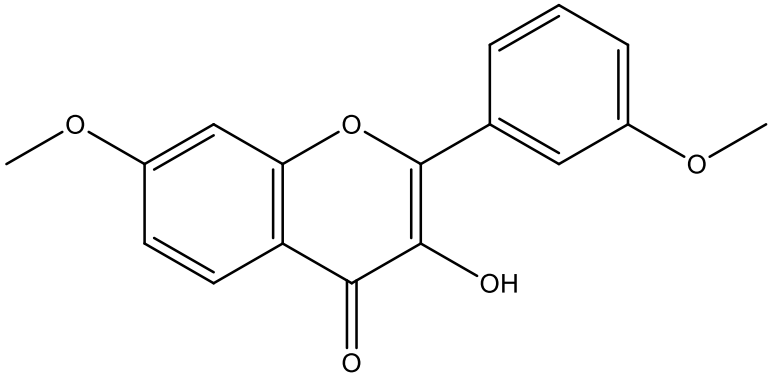


Figure 53: Peak 53: Dimethoxy hydroxyflavone $[M-H]^-$: 297.



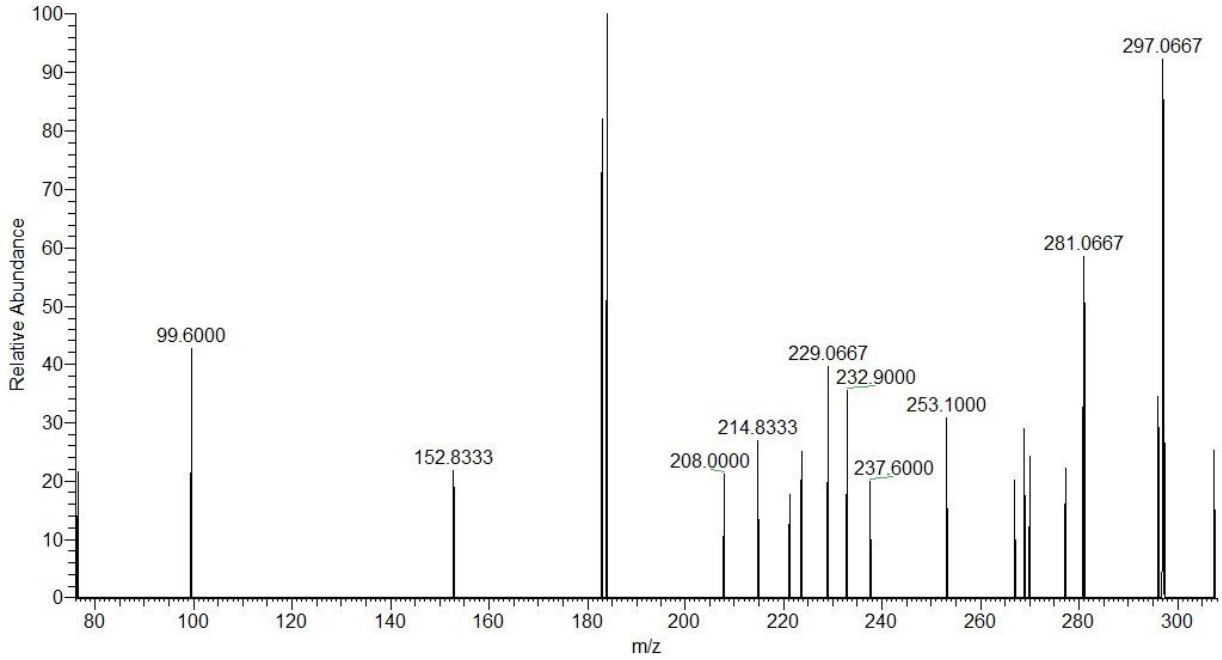
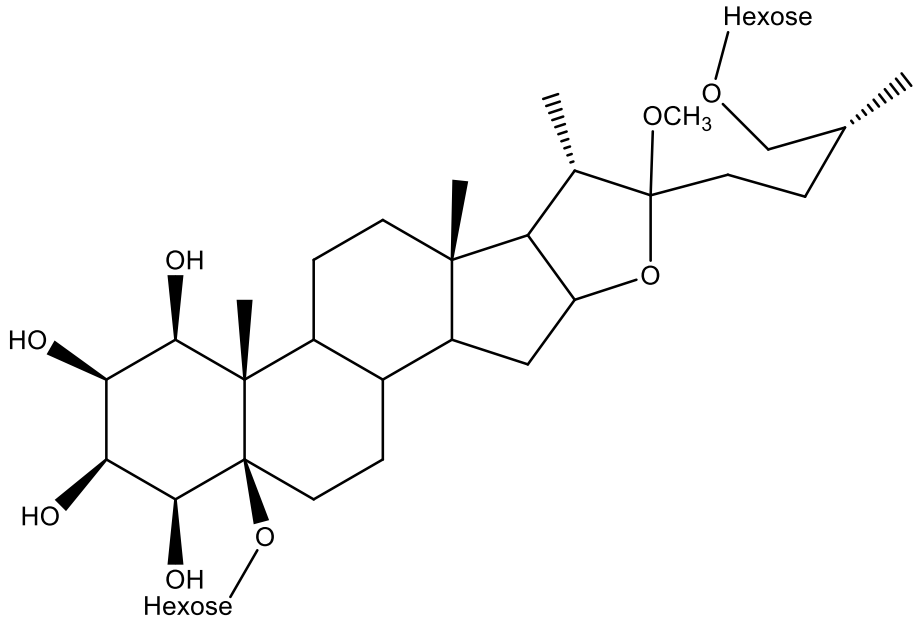


Figure 54: Peak 54: Hexahydroxy methoxyfurostane dihexoside $[M-H]^-$: 835.



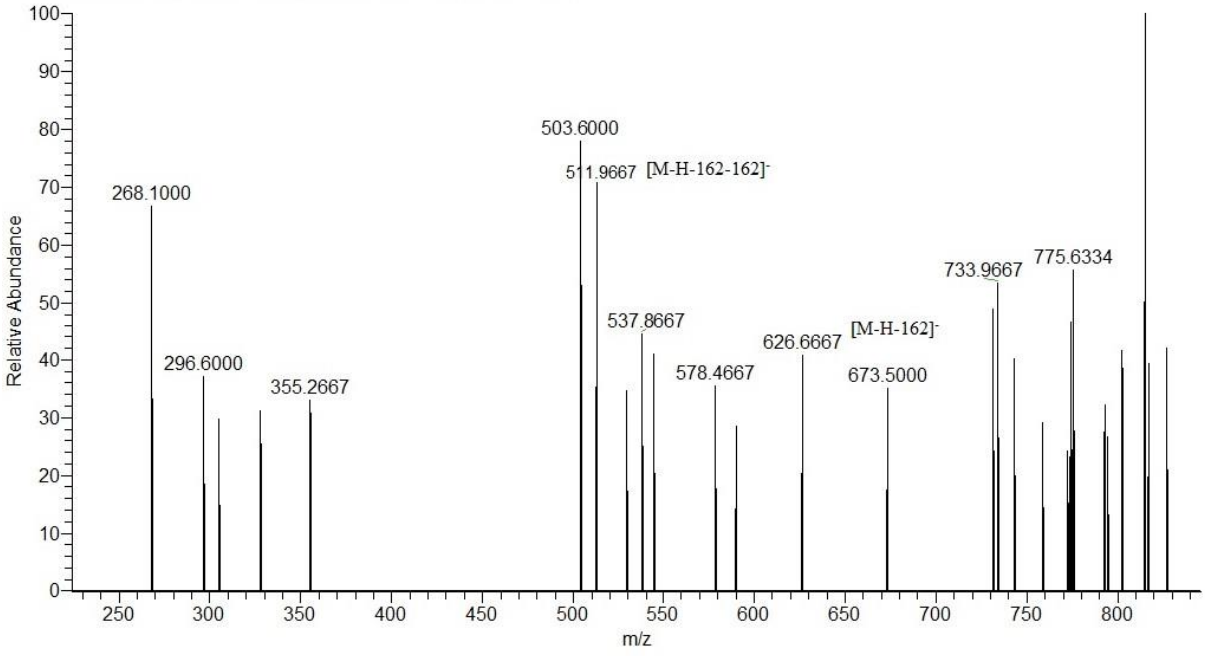
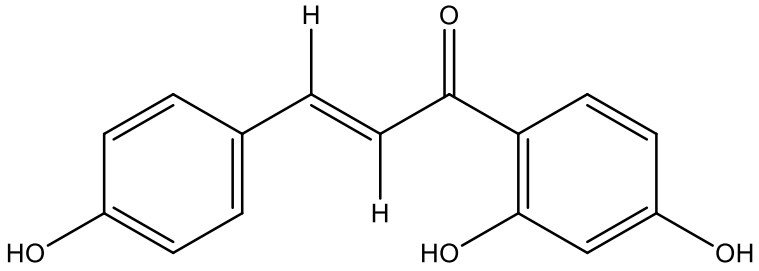


Figure 55: Peak 55: Trihydroxychalcone $[M-H]^-$: 255.



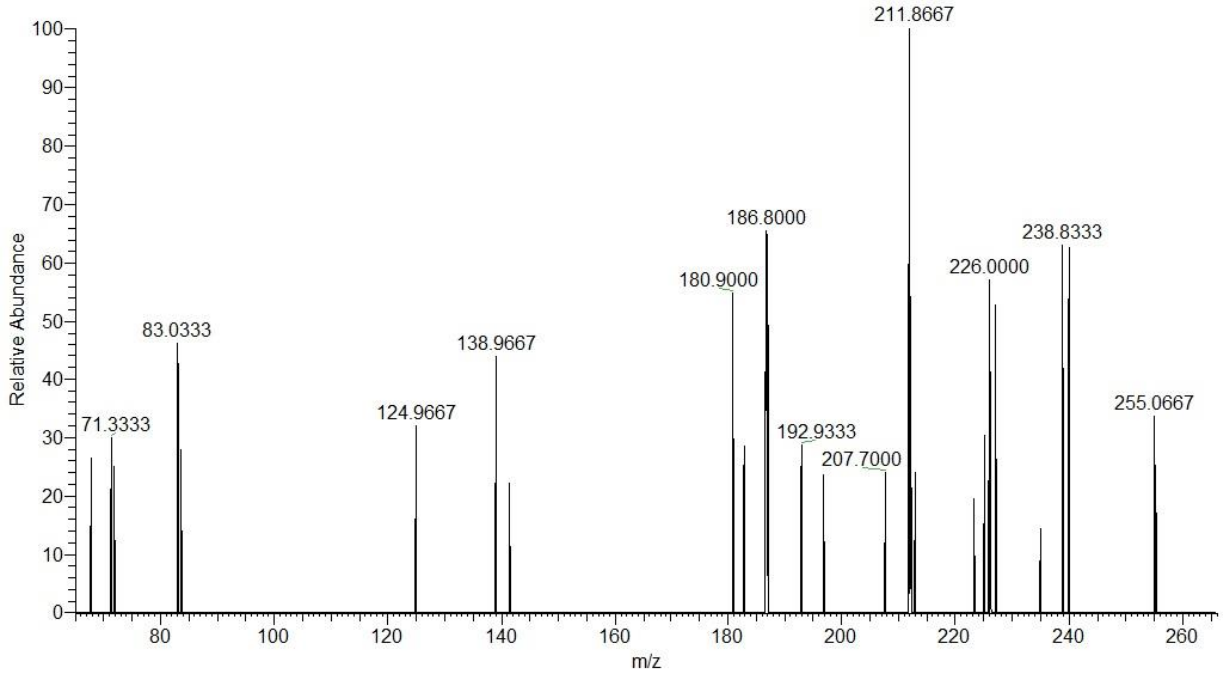
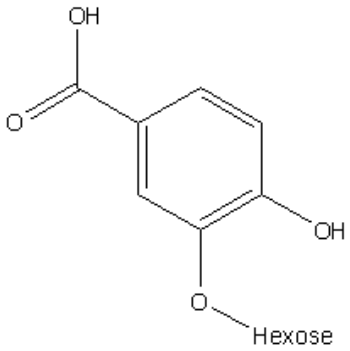


Figure 56: Peak 56: Protocatechuic acid hexoside $[M-H]^-$: 315.



Protocatechuic acid hexoside

$[M-H]^-$: 315.0699

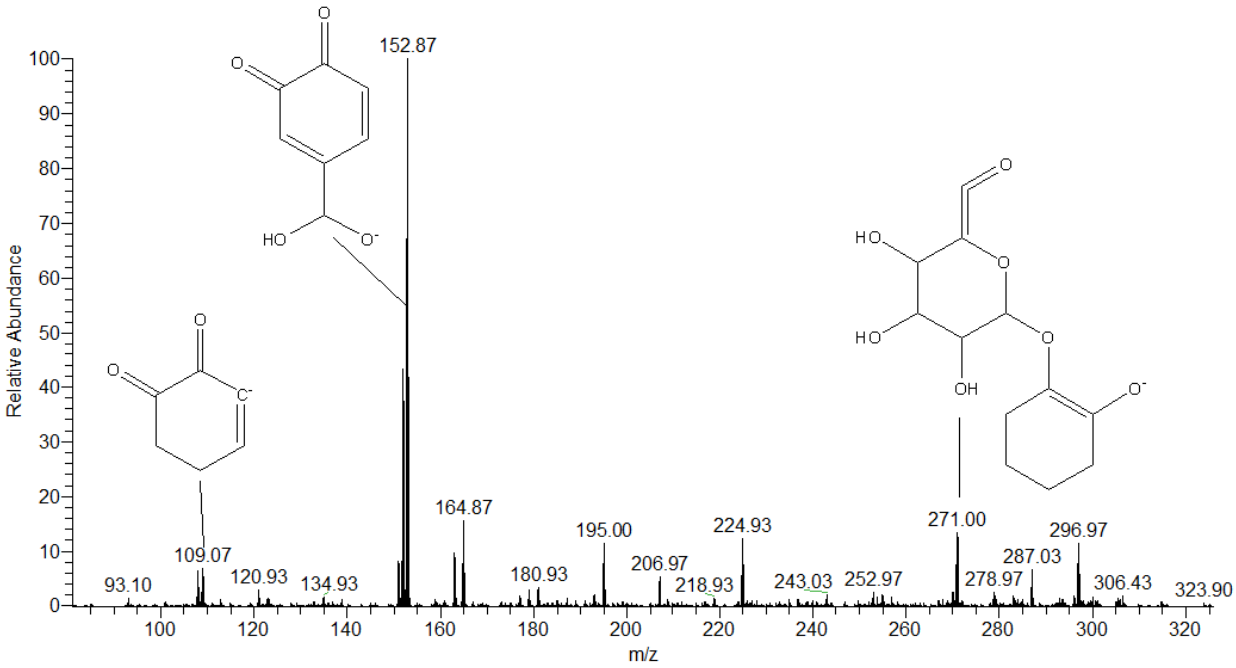
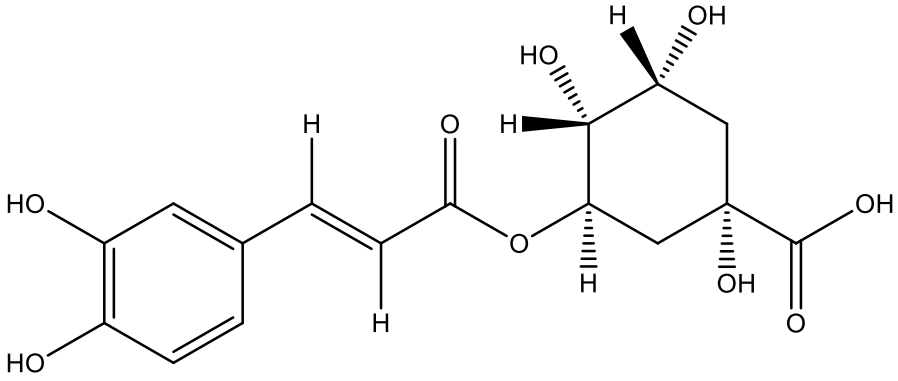


Figure 57: Peak 57: Chlorogenic acid $[M-H]^-$: 353.



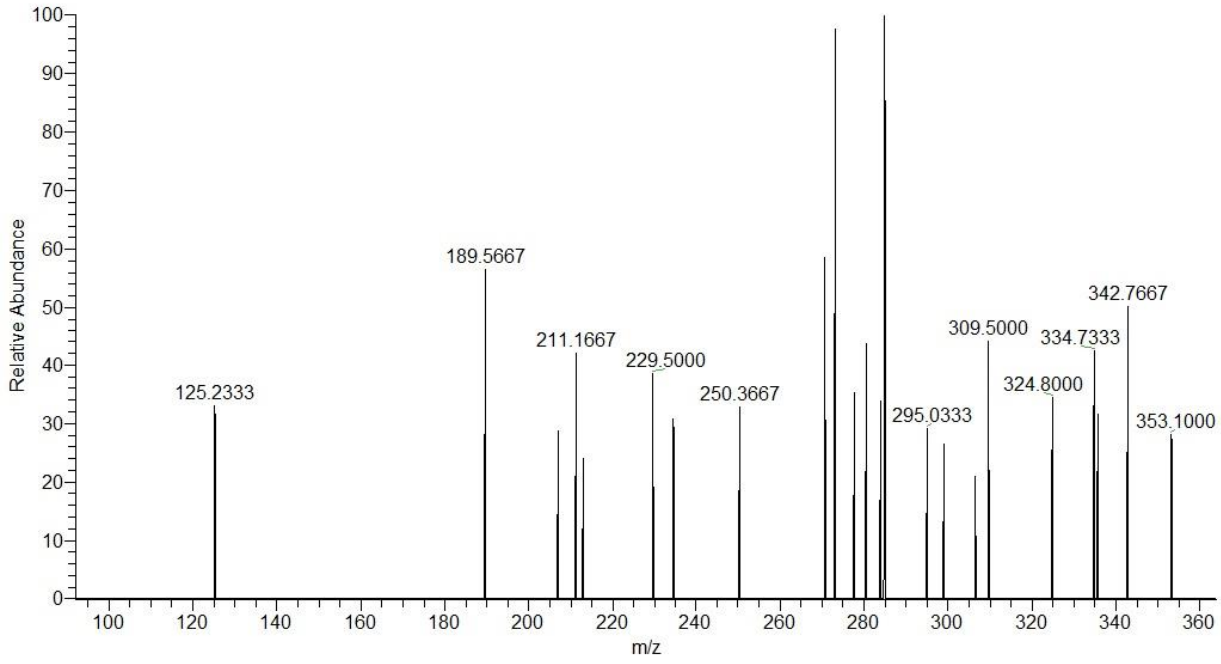
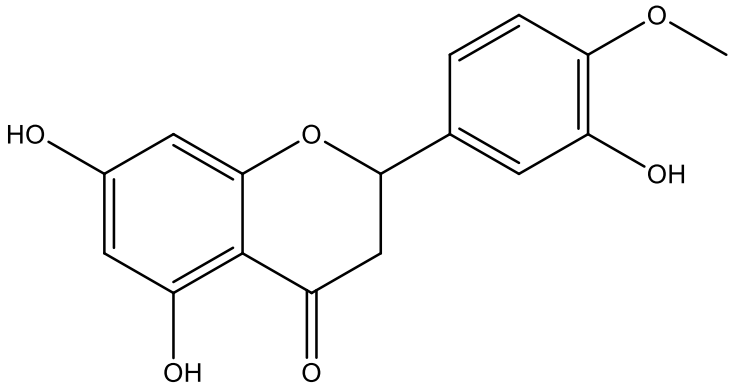


Figure 58: Peak 58: Hesperetin $[M-H]^-$: 301.



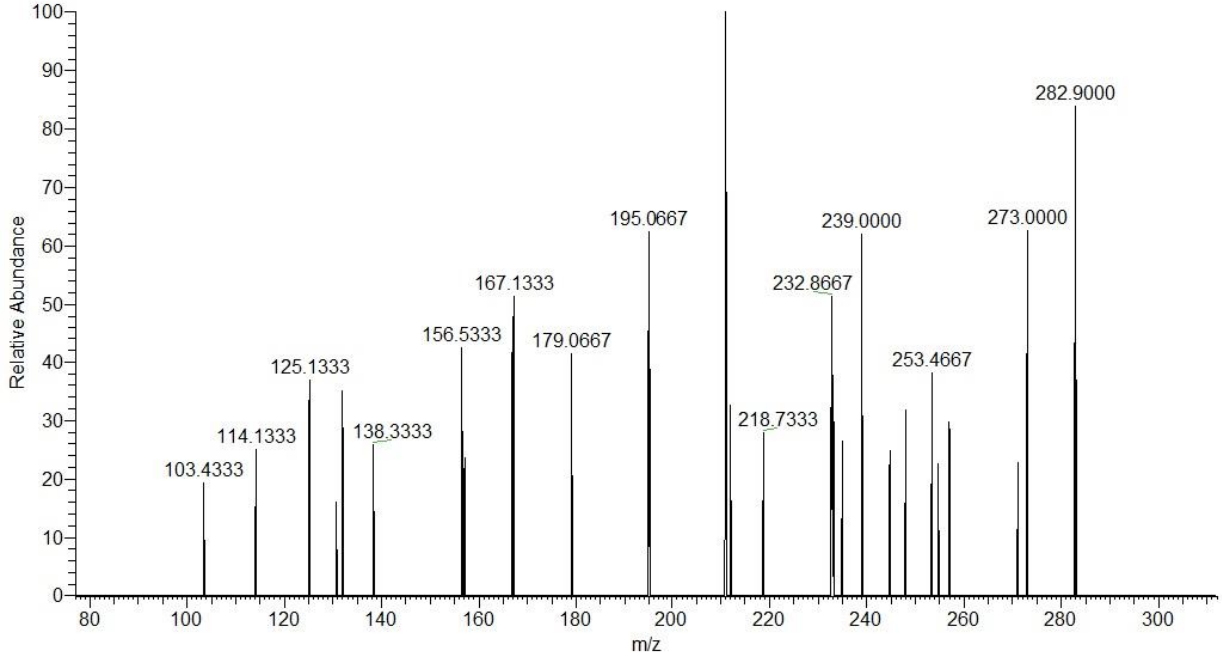


Figure 59: Peak 59: Tetrahydroxy spirosta-diene acetyl deoxyhexoside dipentoside $[M-H]^-$: 911.

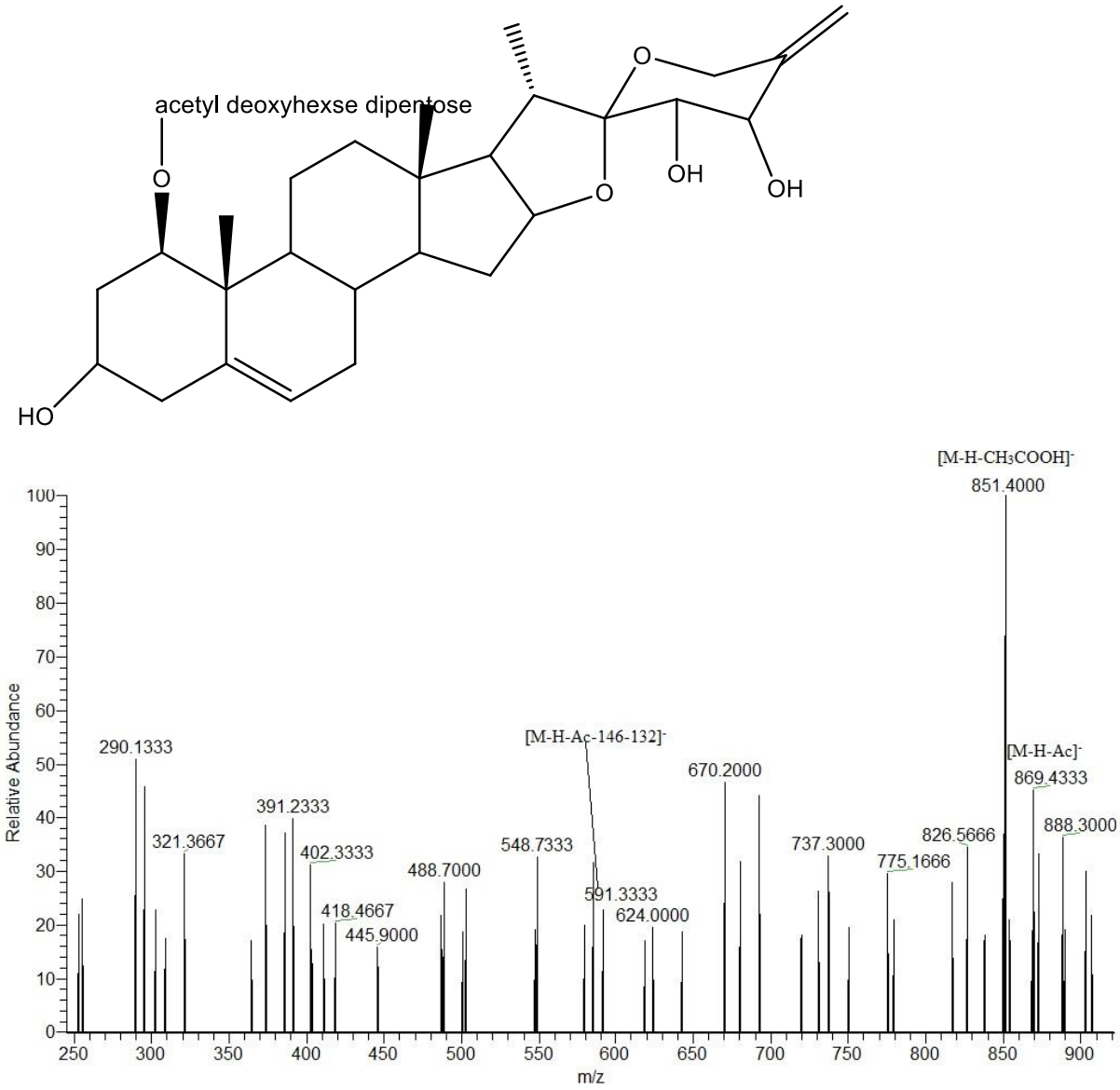
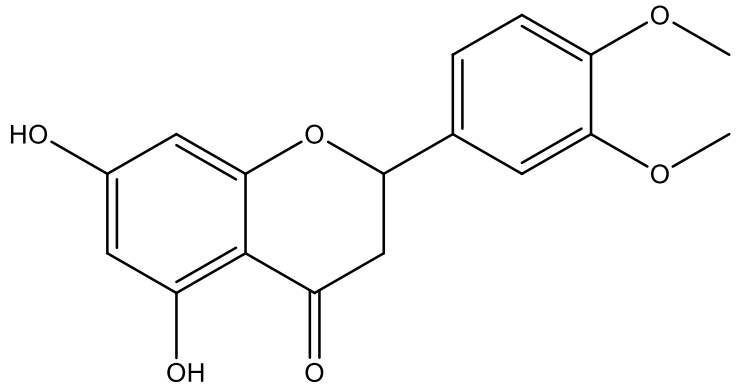


Figure 60: Peak 60: Dihydroxy-dimethoxyflavanone $[M-H]^-$: 315.



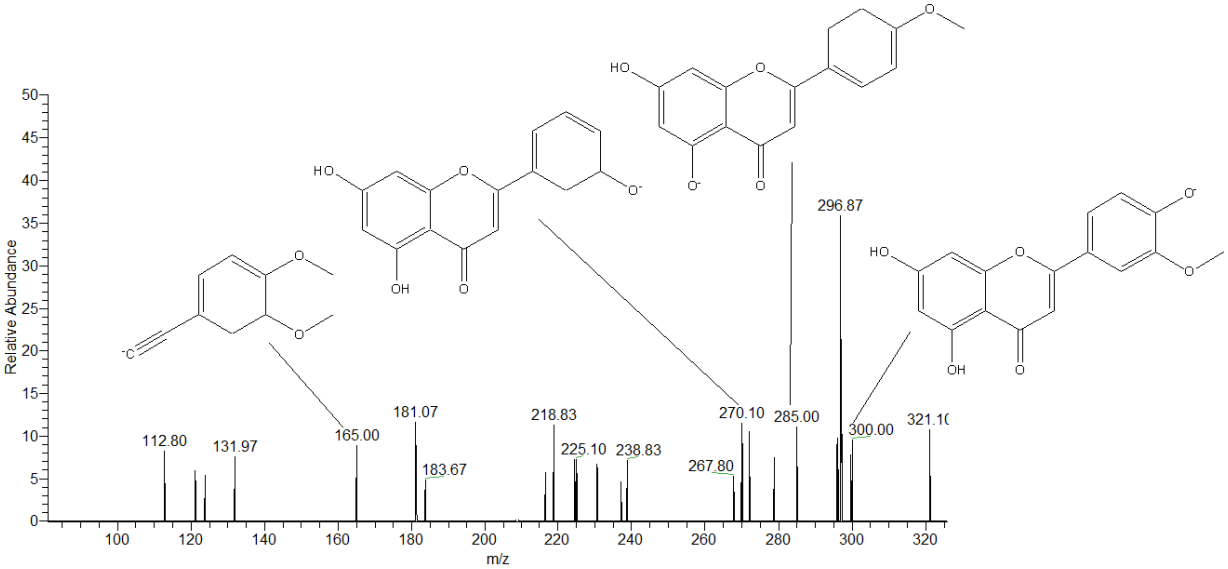
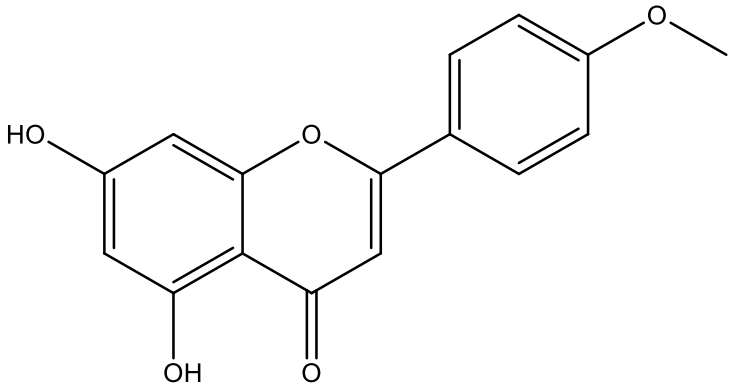


Figure 61: Peak 61: Acacetin $[M-H]^-$: 283.



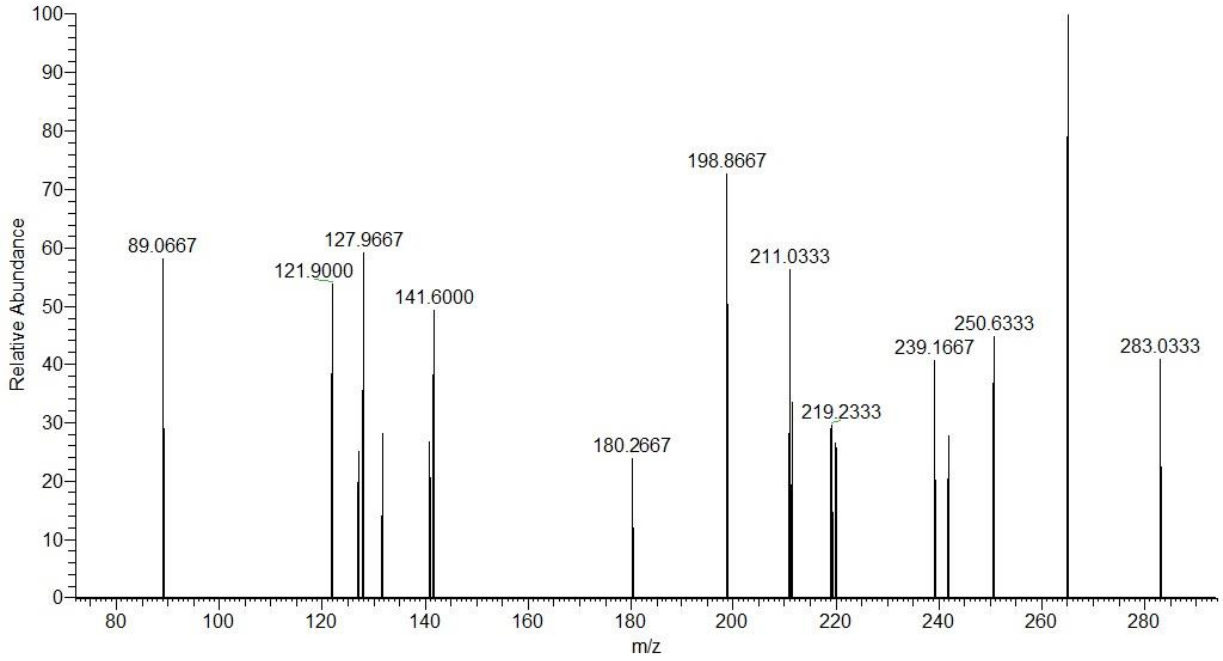
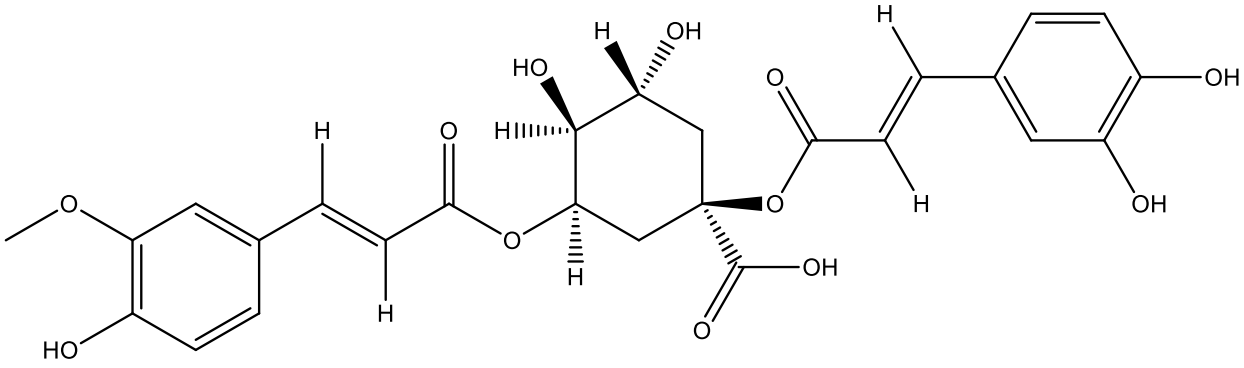


Figure 62: Peak 62: Caffeoyl–feruloylquinic acid $[M-H]^-$: 529.



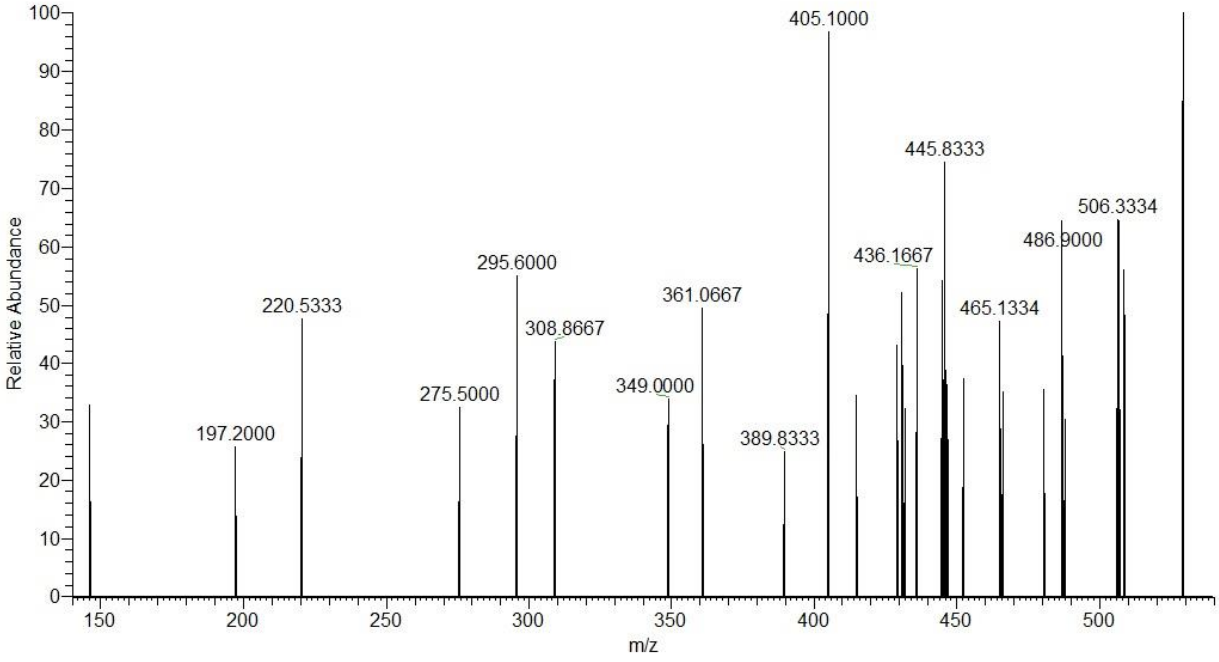
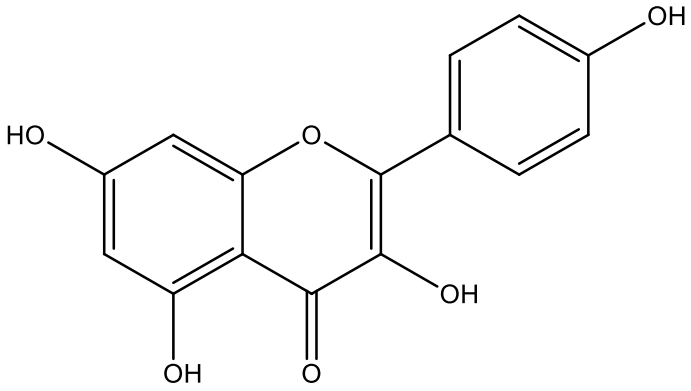


Figure 63: Peak 63: Kaempferol $[M-H]^-$: 285.



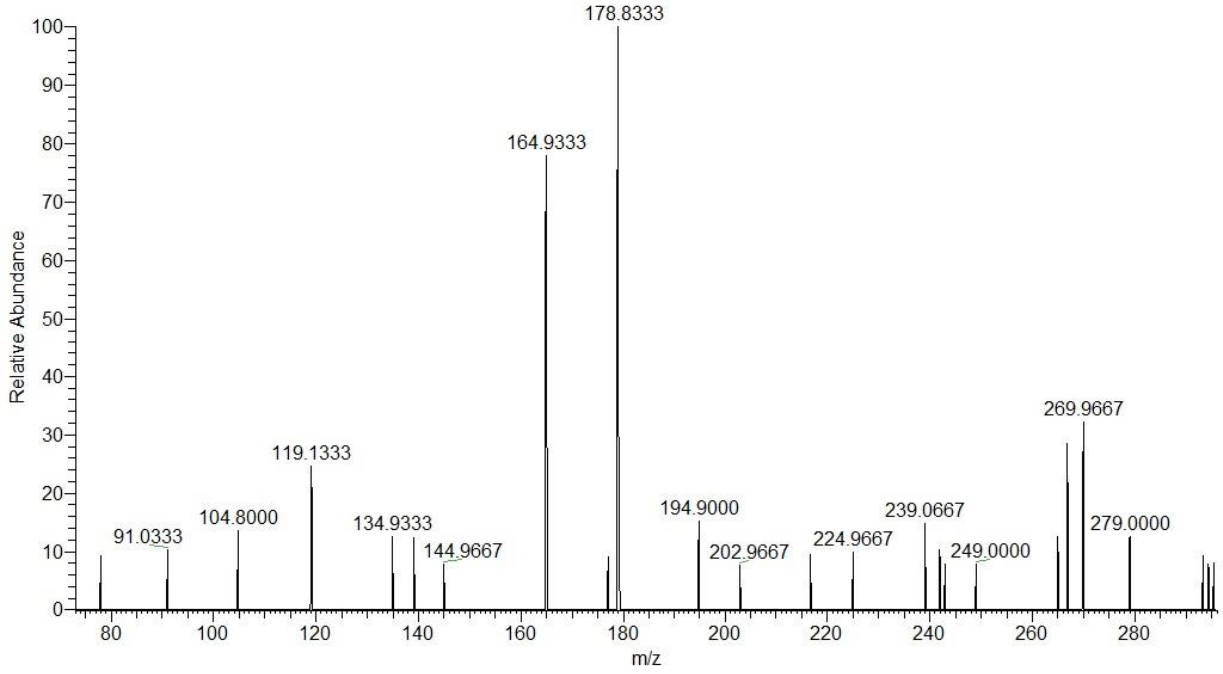


Figure 64: Peak 64: Caftaric acid $[M-H]^-$: 311.

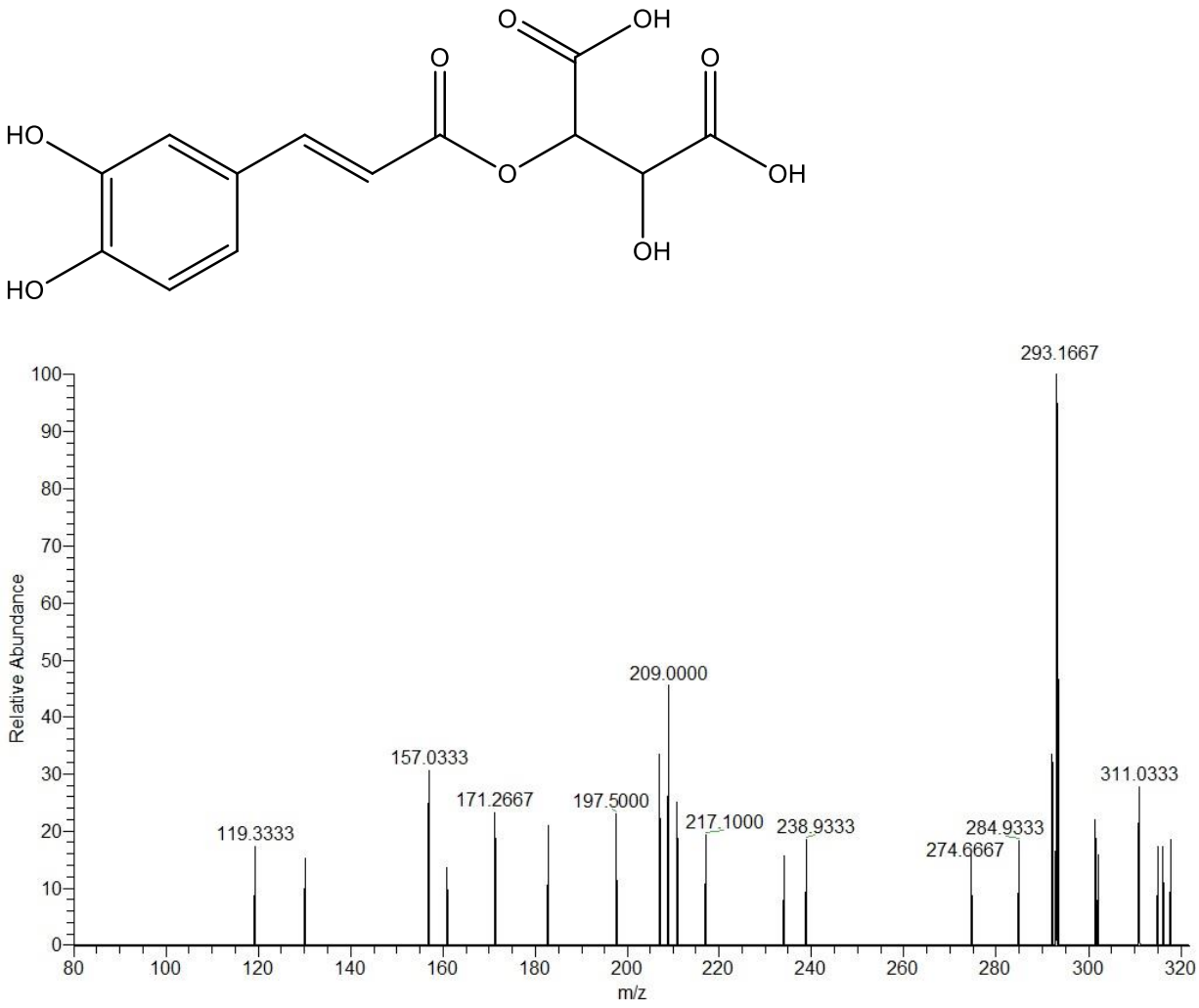
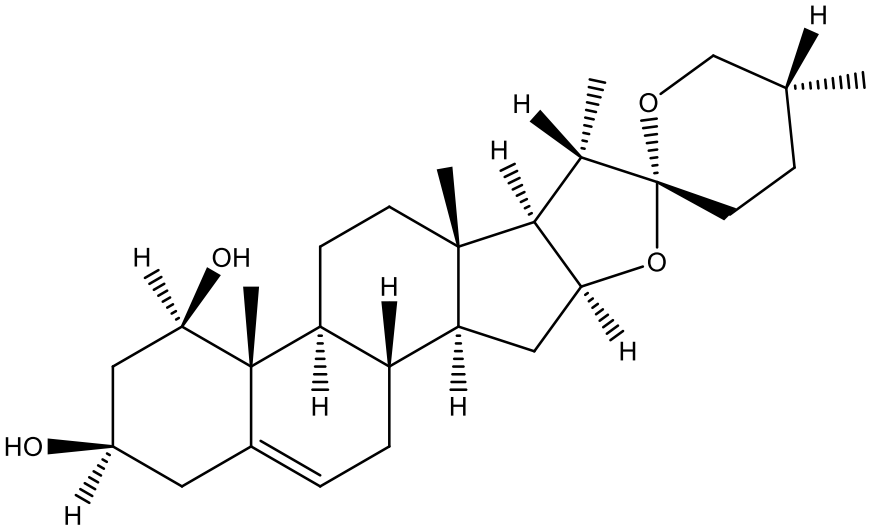


Figure 65: Peak 65: Ruscogenin $[M-H]^-$: 429.



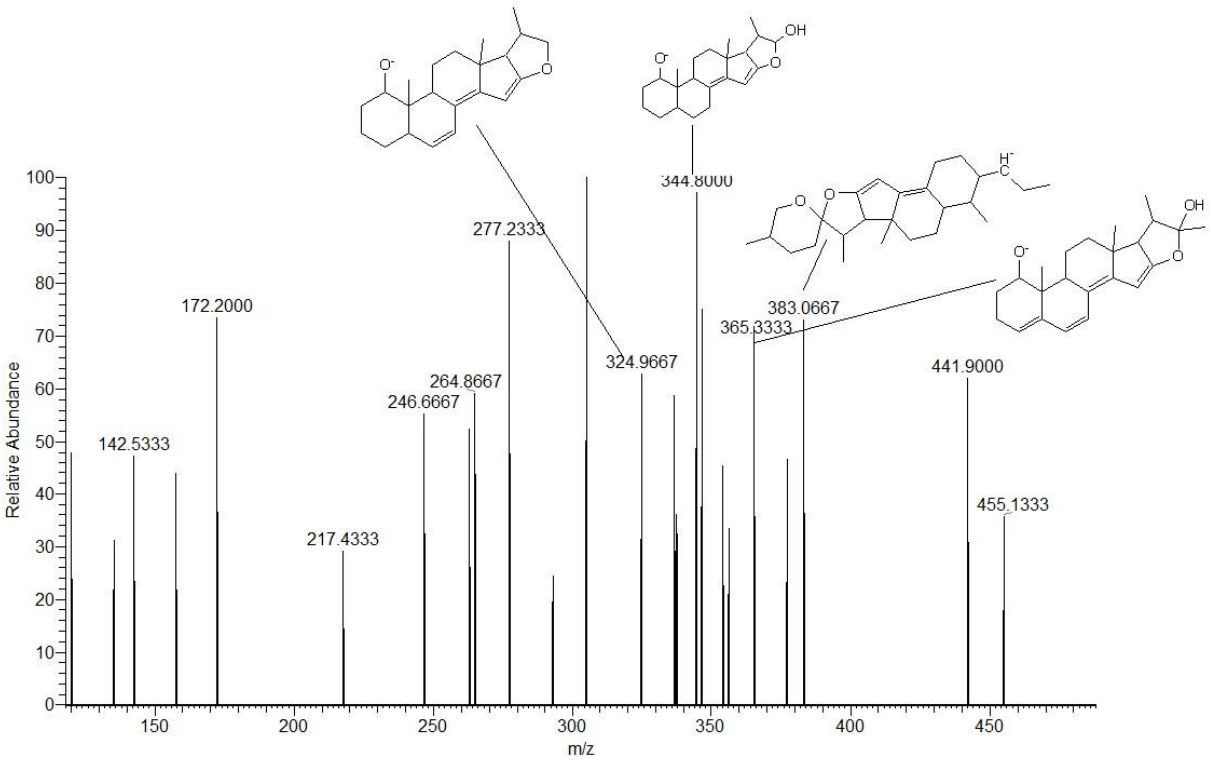


Figure 66: Peak 66: Neoruscogenin $[M-H]^-$: 427.